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THIRD SERIES VOL 56 NUMBER 3

JANUARY 1949



66 PORTLAND PLACE LONDON W1 · TWO SHILLINGS AND SIXPENCE



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THE JOURNAL OF THE ROYAL **INSTITUTE OF BRITISH ARCHITECTS**

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New Year's Honours-R.I.B.A. Secretary is C.B.E.

Mr. J. Hubert Worthington, O.B.E., A.R.A. [F], and Dr. H. L. Guy, C.B.E., M.I.C.E., M.I.Mech.E., F.R.S., chairman of the Mechanical Engineering Research Organization, D.S.I.R., and Secretary of the Institution of Mechanical Engineers, have both been created Knights Bachelor in the New Year's Honours List. Viscount Portal, P.C., D.S.O., M.V.O., V.L. [Hon. F], is made a Knight Grand Cross of St. Michael and St. George, and the Archbishop of Canterbury, P.C., D.D., who is an Honorary Fellow, receives the Royal Victorian Chain.

Mr. C. D. Spragg, C.B.E.

In addition to the above, congratulations are extended to Mr. C. C. W. Goodale (Director of Contracts, Ministry of Works), Mr. E. J. Smith (Chairman, Wales Joint Committee for the Building Industry and Past President. National Federation of Building Trades Employers) and Mr. C. D. Spragg, our own Secretary, who have been awarded the C.B.E. Apart from this honour being a well-merited reward for a life of service almost exclusively devoted to the R.I.B.A. and the interests of its members all over the world, this distinction conferred by His Majesty the King, under whose

Royal Charter the Institute operates, upon the principal member of its permanent staff, is a good thing for the R.I.B.A. and enhances its standing amongst other learned societies and institutions.

Mr. Spragg came to the Institute in 1913, served in the 1914-18 war, became Assistant Secretary in 1926 and Acting Secretary in January 1944. Upon Sir Ian MacAlister's retirement, he became Secretary of the Institute in March 1945. He is a Governor of Christ's Hospital, having also been educated there.

The O.B.E. has been conferred upon the following: Mr. W. E. Fishburn (Vice-President, National Federation of Building Trades Employers), Mr. Seton H. F. Lloyd [A], Adviser to the Department of Antiquities, Government of Iraq, and Mr. D. N. Daunton, Assistant Chief Architect, Ministry of Works.

The A.A. School of Architecture and Edinburgh University

Mr. R. Gordon Brown, A.A.Dipl. [A], has resigned the appointment of Principal of the Architectural Association School of Architecture which he has held since December 1944, in order to occupy the newly-created Forbes Chair of Architecture at Edinburgh. In announcing the resignation, the Council of the A.A. say they have acceded to his request with very sincere regret and they wish publicly to acknowledge his exceptional services in the postwar reorganization of the school. They have appointed Mr. R. Furneaux Jordan, A.A.Dipl. [F], to be the new Principal.

The Forbes Chair of Architecture at the University of Edinburgh includes the post of Head of the School of Architecture in the Edinburgh College of Art. The University trains students for the degree of M.A. with Honours in Architecture.

Preservation of Historic Houses

Sir Stafford Cripps, the Chancellor of the Exchequer, has announced the appointment of a committee to consider and report upon arrangements that might be made by the Government for the preservation, maintenance and use of homes of historic or architectural interest which might otherwise not be preserved. The members are Sir Ernest Gowers (Chairman), Lady Anderson, Mr. W. H. Ansell, M.C. [Past-President], Professor A. F. Blunt, Sir Cyril Fox, Mr. J. D. Imrie and Mr. J. C. Little.

War Damage Commission

The attention of members is drawn to the statement by the Council regarding the scale of fees issued by the War Damage Commission, which is published in Practice Notes on page 133. The R.I.B.A. have not agreed the scale of fees issued by the War Damage Commission, and members are recommended in their own interests to study the note and to come to a clear understanding with their clients regarding fees at the time of engagement.

Mr. Edward Maufe, Artistic Adviser to Imperial War Graves Commission

Mr. Edward B. Maufe, R.A., M.A. [F] (Royal Gold Medallist 1944), principal architect for the United Kingdom of the Imperial War Graves Commission, has accepted an invitation to be honorary chief architect and artistic adviser to the Imperial War Graves Commission. He succeeds Lt.-Col. Sir Frederic Kenyon, who is retiring, having held the appointment since 1917.

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'The Architect in Industry' Conference and Exhibition

The following is the programme for the conference to be held at the R.I.B.A. on Thursday and Friday 3-4 March:

THURSDAY 3 MARCH. SESSION I. 10.30 a.m. Large and Small Scale Industry under Private Practice. Chairman: Sir Percy Thomas, O.B.E., M.T.P.I., Past President, R.I.B.A. Speakers: Lord Forrester, M.A., Anthony M. Chitty [F].

11.50 to 12.0., Paul Cadbury, C. S. White [F].

Lunch, 1.0 g.m.

SESSION II. 2.30 p.m. *Nationalized Industries*. Chairman: The Rt. Hon. the Lord Citrine, K.B.E. Speakers: Kenneth Campbell [A] and a representative from industry.

Tea, 4.30 p.m.

FRIDAY 4 MARCH. SESSION III. 10.30 a.m. *Technical Groups*. Speakers: (i) Structural Techniques. W. S. Atkins, B.Sc., A.M.I.C.E., Edward D. Mills [F]; (ii) Heating and Ventilating. Thomas Bedford, D.Sc., Ph.D., M.I.Min.E., L. Copeland Watts, M.I.Mech.E., A.C.G.I., M.I.H.V.E.; (iii) Natural and Artificial Lighting. W. A. Allen, B.Arch. [4], R. O. Ackerley, F.I.E.S.; (iv) Various Factors Affecting Working Conditions. H. G. Maule, Dr. N. Davis, M.A., Ph.D. Rooms in which the groups will meet will be announced at the Conference. Lunch, 12.30 p.m.

SESSION IV. 2.30 p.m. Reports from the Technical Groups and discussion on the more interesting points. Chairman: Michael Waterhouse, M.C., President, R.I.B.A.

Tea, 4.0 p.m.

In arranging the Conference programme the Royal Institute of British Architects has had the help and advice of the Federation of British Industries and the Trades Union Congress.

APPLICATION FOR TICKETS

Members wishing to attend the Conference should write at once to the Secretary, R.I.B.A., when an application form will be sent. Letters or postcards should be clearly marked 'Industrial Conference'. Tickets will be issued in strict rotation. Latest date for applying is 12 February, but members are advised to apply earlier, as unfortunately it has been necessary to refuse admission to several at previous conferences.

EXHIBITION. In conjunction with the Conference an exhibition of Industrial Architecture will be on view from 1-26 March inclusive at the R.I.B.A., open to the public week-days from 10 a.m. to 7 p.m. (Saturdays, 10 a.m. to 5 p.m.). The exhibition will show the most recent developments in the planning of industrial buildings both in this country and abroad. In addition to the design of factory buildings, it will also deal with the problems of siting, landscape and the provision of amenities, the final section giving a brief historical survey of factory development. The Exhibition will show the most recent industrial architectural developments through the media of photographs, models and plans.

'Ed' Kemper Retires from American Institute of Architects

On 31 December 1948 Mr. Edward C. Kemper [Hon. A], Executive Director of the American Institute of Architects, retired, after being Executive Secretary from 1913 to 1946 and Executive Director since 1946.

'Ed' Kemper, as his friends know him, has in 35 years seen the American Institute grow from a membership of 1,159 to close on 8,000, and much of the Institute's progress has been due to his endeavours in a life devoted to corporate members of our profession in the States. Moreover he has always been a good friend of the R.I.B.A., extending helpfulness and co-operation at all times.

He is succeeded by Mr. Edmund R. Purves, who has previously held the position of Director of Public and Professional Relations of the American Institute of Architects.

Howard M. Robertson to be Royal Gold Medallist for 1949

The R.I.B.A. Council have submitted to His Majesty the King the name of Mr. Howard M. Robertson, M.C. [F], S.A.D.G., Hon. A.I.A., as a fit recipient of the Royal Gold Medal for Architecture for 1949: this was formally announced at the Council Meeting on 11 January.

Great Success of the New Schools Exhibition

Owing to the demand for the New Schools Exhibition, four copies



Mr. Howard M. Robertson

have been prepared and one further copy is in preparation. Of the four copies, one has been sent to Sweden, where the exhibition was seen by 300,000 people in Stockholm, and before the exhibition is returned to this country it will have visited seven or eight other towns in Sweden. Another copy has been taken over by the British Council and has just been shown in Beirut; it is now on its way to Cairo. The British Council propose to use this copy for further exhibition in the Middle and Far East.

The two copies which are at present available for use in this country have been seen at Norwich, where 7,000 visited the exhibition, at Portsmouth, Beckenham, Lamorbey and Maidstone. while the exhibition will be on view in Tunbridge Wells early in February. The other copy has just been shown at the Building Centre, and is at present being used by the Town and Country Planning Association at a conference which is being held at their headquarters. Additional areas which have booked a copy of the New Schools Exhibition are Cardiff and Nailsworth, while the Midland Region of the Association of Education Officers are proposing to show it at nine centres in their area starting at Worcester. Thus by 1 April, this exhibition will have covered about 35 centres in all. Further bookings are being arranged for later in the year. The additional copy is being prepared for the British Council and will probably be shown in a number of European countries where it will be used in connection with educational conferences, some of which will be in collaboration with U.N.E.S.C.O. Later in the year the Exhibition Sub-Committee will make arrangements to bring this exhibition up to date, and it is also probable that it may form the nucleus of a permanent exhibition which is being considered by the Ministry of Education.

Forthcoming General Meetings

This year the arrangements in connection with the announcement of awards of the R.I.B.A. Prizes and Studentships have been altered. The awards were announced at the General Meeting on 11 January and the principal prize-winning designs will be illustrated in the February JOURNAL. At a General Meeting on 8 February the President will deliver his Address to Students and Mr. Anthony Chitty, M.A. [F], A.M.T.P.I., will give a Criticism of the work submitted in the competitions for the Prizes and Studentships.

On 22 February Professor Anthony Blunt, C.VO., will deliver a sessional paper on *Mannerism in Architecture*. Professor Blunt has made a special study of this aspect of æsthetics in architecture; the meeting is likely to be fully attended by members.

On 15 February design in relation to structure will be discussed at a meeting of the Architectural Science Board, by Mr. F. J. Samuely, B.Sc., A.M.I.C.E., under the title Force and Form: the Æsthetics of Stress Distribution. Mr. Samuely is lecturer in Structural Design at the Architectural Association School of Architecture.

The Town and Country Planning Act and the Work of the Central Land Board

By Sir Malcolm Trustram Eve, Bart., M.C., T.D., K.C., Chairman of the Central Land Board

Read before the Royal Institute of British Architects, 14 December 1948. The President in the Chair

The President: I need hardly introduce Sir Malcolm Trustram Eve to architects, who know him in the War Damage Commission. In particular have known him since the early days. I have for him friendship and the greatest admiration and respect, but it is tempered by that feeling which humankind has for the magician. He is a wizard who unravels the tangled web so easily, hands it back to you—and what a mess you make of it. It was like that in the War Damage Commission. How much the more so will it be under the Town and Country

Planning Act.

The more I begin to think that I begin to understand that Act the more completely at a loss am I on the very simplest questions that in practice are put to me by my clients. But seriously it is a piece of new legislation the effect of which has not yet been realized by the public, and there is one feature of it as regards our profession which places an added burden on our clients in addition to the development charge itself and the effect that it has on both us and our clients-on everyone. I refer to the fact that the client has to go to the expense of making complete working drawings before he or we can know the exact amount of the development charge. That knowledge is an essential factor to our client, or to us as his advisers, in assessing the merits, the value and the practicability of any building scheme. I am hoping that it may be found possible to come to an arrangement by which the amount of the charge can be ascertained at sketch plan stage without putting our clients to the expense of full working drawings. Sir Malcolm will, I expect, deal with this in the questions and answers that he will receive.

Sir Malcolm Trustram Eve: Before I talk about the financial side of the Town and Country Planning Act, may I say a word, as the President has, about the past? I am very glad indeed to be here today, sir, speaking under your presidency, because ou have yourself been engaged in every single talk with this Institute that the War Damage Commission has had from the beginning; and very grateful indeed are we to you personally for all you have done in the past seven-and-a-half years. Secondly, the War Damage Commission itself has on its staff a very large number of the members of your Institute, and I would like to take a moment to thank them for all they have

done both for the Commission and—what is far more important—for the public. And, of course, all of you have had a great deal to do with the War Damage Commission. Just as an illustration—and only one: we have now paid out just a shade under £750 million, of which I am glad to inform you about £19 million is fees. I mention that to show that we have had a good deal to do with each other in the past and to lead up to saying that for good or ill you have got to deal with the same team again.

The membership of the Board and of the Commission is now identical. Sir Robert Fraser being the head of the department of both, and the same staff will be dealing with you, so at least you know what you are in for. The only big difference—and, indeed, it is a big one—is that in this new job of the Central Land Board we have even more to do, I am glad to say, with Sir Roydon Dash, the Chief Valuer—who has also been kind enough to come this evening—because unlike war damage, where valuation jobs were concerned only in a minority of cases, every job now has a valuation element in it at some stage or other

This is a very large subject, and it is quite impossible to deal with it comprehensively in a short period. What I want to do, if I may, is to pick a few things out, in the short address I want to give you, which would seem mostly to be affecting architects, and then leave the audience to pick the rest of the subject for themselves through their questions. I hope you will bring up all the questions that trouble you and try to choose the subject yourselves when I have finished, because I am not even going to try to deal with a fraction of the problem in the short time I have. I propose to confine myself entirely, although I do not for a moment suggest that the questions should do so, to the development charge side of our job and not mention the other side. I do this because I think you are probably more concerned as architects with that side than with the other.

Unfortunately, I suspect most of you will be dealing with us, for the time being, only on houses, because this is almost the only building that is going on; so I am going to deal with a natural plot and treat it chronologically through and show you what happens under the Act and what the procedure is.

Existing Use Value

I want to assume there is a piece of land. Planning consent is available for it for a house, and somebody wants to build a house on it, but has not got it. The first thing he has to do is to get the land How does that work? You have heard that the new theory of this Act—and the President is so right when he says it is not yet appreciated—is that properties in future should change hands at what is now known as existing use value. What is it all about, what is the object of the scheme, and why has the Act been passed?

You will remember that in the past, before the War, a great deal of discussion took place about buildings going up in the wrong places-'ribbon development' and such phrases were used, and 'compensation and betterment' were referred to. It was said no planning could be carried out because far too much compensation was asked. These various matters were boiling up when the war came, and the Coalition Government set up, as you remember, an expert committee known as the Uthwatt Committee to make a report. They reported, and then the war was on. The Coalition White Paper—may I repeat the word 'Coalition' because it is sometimes forgotten—was published, and it is the foundation of this Act. That white paper accepted certain principles, which are now in the Act.

The first of these principles is that development value should belong to the State. The second is that some form of development charge should be payable whenever development takes place. The third is that compensation for loss of development value need not necessarily be 100 per cent in every case, because of what is known as floating, or shifting, value. These three main principles were in that white paper. The present Government then introduced this Act, put the flesh on the

skeleton, and here it is.

How does this Act try to introduce the governing principle that land should in future pass in transactions only at existing use value? It does this in four ways. First of all, it provides that if planning consent is not given for a particular desired development, there shall be no compensation, so if anybody does buy a piece of land with the intention of developing it and is unlucky enough to get a refusal, he does not get a penny piece towards the price he has already paid if it is above existing use value. Secondly, the basis and formula for compulsory purchase for public purposes and by all authorities is now on the basis that existing use value only is payable when the land is required. Again, therefore, someone paying too much will not get it back if he is unlucky enough to come into that field. Thirdly, and this is where we mostly come in, on development, that is, when planning permission is given, the market value of the benefit of that permission is chargeable and payable to the Central Land Board as a development charge. If the excess value created by permission is payable to the Board, there ought not to be anything left to pay other than existing use value for the

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land. Lastly, the Government has set up a fund of £300 million, which is to be disbursed under a scheme to be made, as the white paper says, in accordance with various circumstances of hardship, but it has been clearly stated that while some people will get 100 per cent, some people will not. These are the four main points which are intended to safeguard the prin-

ciple of existing use value.

What is existing use value? I think I can best put it in this way, because we are all used to this. There is one example of it that has been current for a very long time. If you buy a house under a covenant that it should only be used as a private dwellinghouse on an estate where nobody thinks there is any chance whatever of removing that covenant, that is existing use value. On the other hand, if you buy a house on an estate where it is known that the covenant could be released tomorrow morning, either for nothing or for a very small price, the market value of that property is higher, and that is not existing use value. The great majority of land transactions in the past have always been at existing use value. If you bought a farm in the countryside without building value, you did not pay anything more than the value you could get out of it as a farm. With most houses you bought where there was a covenant or where there was not, you normally only paid the value of the property to use as a house; the same with modern shops, modern factories, and the like. But there are two broad examples of land where that certainly did not apply. The first was land known as building land, usually agricultural in use, but being near a town or possibly a village, passing at far higher values because of the potential possibility, or probability, or certainty of it being used for building at different times in the future. In those days, that land crept up in value, starting at some time in the past as agricultural, until it gradually reached the building stage or the time when it was suitable for immediate development, or, as it is sometimes called, 'dead ripe'. Under the new theory that land will not creep up in value. It will remain, it is suggested, at agricultural value until planning permission is granted for it to be changed into a house building site, when instead of creeping, it goes direct to the higher value, and changes straight away from one value to the other.

The second class of land which was never sold normally at existing use value before was what is sometimes known as underdeveloped land, an extreme example being a slum cottage (though there are, of course, many other examples) where the property would often sell though not having any element of value in it at all, for the slum cottage standing on it, but would sell at a high price for redeveloping for some better purpose. That, again, ceases under the Act. The slum cottage has whatever value it may have as a cottage until such time as planning consent is granted, and then the land changes in value to whatever the planners say ought to be put upon it. That is a glimpse of existing use value, and that is what is intended by this Act to be the transaction, not with the public authorities, because this is provided for—notice to treat will be at existing use value—but also in transactions between two private individuals who voluntarily dispose of their property.

We are very young and inexperienced yet. I hope, speaking for myself, we shall get better. But we are learning as we go along, and we have a difficult job suddenly to introduce this thing; but we are trying to take first things first, and we have issued a pamphlet which I hope you will find convenient, clear, and above all, fair. We call it 'House 1', and I am going to refer to it now, though not in detail.

Assignments of Claim

House 1 is advice to buyers and sellers of a plot for a house. We find it very necessary to advise both of them. We found that a lot of people were selling their land in the very early stages at the old pre-Act value and keeping their claim on the £300 million in their own hands, and thus were proposing to claim the same thing twice over. Frankly. we thought that was naughty, and we said so in unambiguous words. I am afraid I have been criticized for using the word 'dishonesty' in that connection, and I am afraid I think it, and I am going to go on using it. The second thing is not dishonest, but is unfair to purchasers: it is the method still being followed of selling land and assigning the claim on the £300 million as part of the purchase price. Why do I say that is unfair to purchasers? It is because it is selling a risk at a certainty price. Nobody knows what the claim is worth. And yet people are saving: 'I will only sell my land on the basis of selling it at a 100 per cent claim.' What happens? The sellers find they can get away with it. But the purchasers immediately find that they have to pay pretty well the same amount again to us the next morning-and they do not like it, and I do not blame them, because they need not. Therefore, my advice is to say in clear and unambiguous terms, 'Never buy a claim on the £300 million as an integral part of the purchase price of a piece of land. If you do, you have been warned. You know where you are, and you will have a nasty little letter from us saying we want it all over again the next morning.'

Sales Inclusive of Charge

Having said what you should not do, what ought you to do? There are, in my view, two methods of selling that plot for that house, both of which are perfectly open. (I am, of course, cutting out the builder developer who actually builds the house. He is a different class.) The seller can say to the purchaser: 'You have got to pay this charge,' and the purchaser, in this case, should say: 'I am afraid I can only pay you existing use value.' Now, the seller may not like that-and sellers do not like suddenly being told they have to sell a piece of land they think worth, say, £400, for £50. It is not enough, to put it quite bluntly, especially as the claim is an unknown quantity. Therefore the alternative approach is perhaps slightly more attractive to the seller. It is this. Come to us and say: 'I will pay a development charge. How much is it? Answer-£X. Once this is done, the seller can sell his property at a price inclusive of development charge by any of the normal methods of sale that have been knownprivate treaty, advertisement, house agent, even public auction—and get any price that he can get in the market. We have assessed the charge to the best of our ability so as to produce a balance as near as possible to existing use value. We may be wrong; a seller must not be surprised if the second time the property is sold we say we want a little more charge. We had too little before. That is what I call 'higgling' the market. And the Board are trying to fashion their work as much as possible upon a decent landlord selling decent property in a decent way, and thank goodness we have no formula for development charge. There is no legal basis. We can do justice. I hope we won't do injustice.

So much for selling. One last thing—the Act of Parliament has presented the Central Land Board with the power of compulsory purchase, a very unpleasant power and duty. It is the only sanction we have been given to enforce existing use value where people will not sell on proper terms. The Board are not going to buy England, Wales and Scotland under this power, I hope, although it is fair to say we have already had a letter addressed to 'the "Central Landlord"?" What we do intend to do, however, is to use that power as a reserve power. The power exists, and existing use value must be made to work. I hope it will not be necessary to use it except in a very few cases, but I suspect that until we have used it a few times no one will believe us, and so I think we shall have to get on with the few and see what happens. I do hope most sincerely that architects who, after all, are primarily concerned with the design of the building and the decencies of the land and want to keep land values and land costs at a minimum, will help us as much as they can to see that this new system gets into the swing as soon as possible. It will get into the swing in the long run, in any event, but it will be very much easier, I suggest, if it gets into the swing soon.

Determination of Charge

Having got the land, what happens next! I feel very diffident about this because the President made two contradictory remarks. He said he did not understand the Act, and then he proceeded to say something about plans (which, with all due respect to him, is inaccurate), because he said he hopes we shall do something about it. But we have never done what he says we do. The first thing you have to do before you come to us is to get a planning consent; and why? Because the Act says we have to value the planning consent. We can not value a consent that is not in existence. But I have never said in all my published utterances that we want full working drawings when we assess the charge; nor do we. There may be cases where it is convenient that they

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should be provided, but we want nothing extra done for us at all, except one copy of whatever you send to the planning authority. You have to do that anyhow. All we want is one extra copy. I do not know what you send in to the planning authority. All I know is you have to send it, and as you have to go to them before you come to us we think it is much less trouble to everybody concerned that we should have no rules of our own except that we would like an extra copy of the document on which you get planning consent. In a great many cases this can be outline plans. If someone wants to lay out a new virgin piece of ground with roads and, say, eight, ten or twelve houses to the acre, the first thing he does is to go to the local authority for planning consent in principle. If he has got as far as taking the line of his roads, possibly his sewers, and the fact that he is going to be allowed so many houses to the acre—then all we want is that. We are not concerned in the slightest degree with the detailed plans in any shape or form. We want to know the benefit to that piece of land of changing it from an arable or grass field into a building site. If it is appropriate to send in a detailed plan to the planning authority, we want it-or rather we do not want it, but I believe this audience will agree with me that it will save a lot of time if we stick to the idea that all we want for ourselves is an extra copy of what you have to give somebody else. That is my slogan, and I very much welcome the constructive criticism of the Institute on it.

Can you come earlier? Yes. We realize that there will be many cases where it would be waste of money to prepare detailed working drawings until it is known that the land can be bought with planning consent and what the approximate amount of the development charge will be. So we have arranged from the beginning—please do not overdo this, because the staff is not very large—that informal consultation is quite proper in these circumstances with the District Valuer at an early stage. In an appropriate case, where it is quite clear an enormous waste of money might be incurred by drawings, and the like, come and have an informal talk with the District Valuer and see if he can help you informally with the matter before you become formal.

Then we come to the formal stage. It starts with the form known as D.1, which we ask you to send in with the planning consent to the planning authority. The idea is to reduce the trouble to a minimum. You send it all in the same envelope, and the planning authority look at it. If the planning authority refuse we never see it. It is nothing to do with us at all. If consent is granted, they-not you-send it on to us and we immediately give you a postcard saying we have it. That is where we start, and as you are probably purple in the face by that time, please remember that postcard represents the day on which we start. The drawback from our point of view is that we come last in this job.

What happens next? We attach enormous importance to talking over these things.

The first thing that happens, therefore, is that the District Valuer writes-unless the case is exempt, and I am glad to say more than 30 per cent of all cases coming into the office so far are exempt-and asks somebody-a professional agent if there is one, or the client if there is not-to come and talk. We do not want to announce any figure until we have had a talk. We have instructed the various people-and the Chief Valuer is, if I may say so, very keen on this-if they will not or can not come, at least to try on the telephone. We make every effort we can to get that informal discussion before the figure is announced, but we are not going to hold up development, and therefore we have a 'but' if we can not get hold of the other side within one month, out goes the figure unless the applicant's adviser writes and says, 'We are not in a hurry.' Then the figure will not go out. When it does go out it is only provisional, but no figure will go out for a month in order that we can have a talk unless it has been previously agreed. And I would like, if I may, to take this opportunity of thanking Sir Roydon Dash for the good start he has given us. Practically every development charge so far has been agreed-well over 90 per cent. That is not a bad start, and we want to keep it up. We feel much happier if people like the amount. I do not say 90 per cent of them like having to pay a charge. It is their natural desire to pay nothing, but they do agree to the amount.

Methods of Payment

Say we have agreed on a charge of £200. How is it paid? It can be paid by lump sum or in many other ways. We favourand I am glad to say we are finding the public, and particularly professional advisers, like this—one single capital sum to get shot of it. If you do not get shot of us we have to be a nuisance. We have to have a mortgage or some charge. We have to collect the money and we have to be there as an extra person for some time until all the money is collected. If you have been used to buying land freehold before, and if the land passes at existing use value, the total actual commitment for the land will be no more than before, and we see no reason whatever why it should not be paid as a single capital sum. If you have been used to developing leasehold (leasehold is sometimes ground rent plus premium) we see no reason why the development charge should not take the place of the premium. Then there is the case where there is merely a ground rent and no capital sum found. The extra amount has to be found somewhere, because the Act says development charge has to be paid. Presumably, therefore, it will be found, if it is not found by our financing it, by borrowing privately. Do you not think it is better to have a private mortgage than a public one? My recommendation is that you should get the loan elsewhere and not from us.

You build your house: the house is up. What can happen afterwards? The house can be rebuilt ad infinitum of the same size without charge for ever. It can be enlarged

10 per cent any time you like in one stage or many. You can do anything you like in the garden in the way of ancillary buildings except a garage or stable, and they come within your 10 per cent. You can do anything you like inside in the way of alteration without charge. You can alter and materially affect the exterior appearance without any charge, although you must get planning consent for that. So you can do a lot to that house. In fact, I think there are only three things you can not do to it. You can not materially change its use to something else; you can not convert it into flats because it is built since 1 July 1948; and you can not enlarge it by more than 10 per cent. There is the story of my house fron. the piece of land to the end.

Change of Use

Now I come to another class of property There are a large number of houses which are outmoded as houses. Nowadays planning consent has to be obtained to change the use of such a house to something else, say, flats or offices. What happens there? That is a material change of use to which development charge is attracted. The first thing I want to say is, of course, that it is only attracted if, in fact, the value would go up; for, of course, we get cases where development charge is payable in law but actually works out at nought. A few people are worried about the charges in this respect, because they have not realized that the bottom value of the charge, the house value, has now to be ascertained on the basis of a permanent restriction against altering it from a house, whereas the office value is much higher. There is sometimes quite a large gap which rather shocks people, but they forget that the higher value was because of the possibility of changing it into offices. We have to bear in mind that it has now only a value for use as a house, and any value attributable to the possibility of changing it has gone.

Another very useful thing I think architects will find is this. There is a special provision when it is only change of use that we can assess-must assess-charge for a limited period on request. After all, if planning permission is for a limited period, say, ten years, development charge also will be for ten years. But if it is a temporary change of use-say a house into a nursing home by a person who is not quite certain whether the nursing home will be a success -people can ask for the charge to be determined only for a period of years. If they do, they will have it determined only for that period. I need hardly add that at the end of the period, if they continue, they

will have to start again.

Those are the points that I thought would be particularly useful to architects. I will now deal with the written questions

ANSWERS TO WRITTEN QUESTIONS

Q. Certain undertakings have existing buildings of perhaps three or four storeys in height, which buildings are not entirely suitable for modern commercial undertakings, either by reason of age or a general change in the layout of industrial buildings.

If the upper storeys are demolished and the buildings reduced to one or two storeys in height can the cubic content of the portions so demolished be erected on other land within the present boundaries of the hereditament?

A. The answer to that is Yes. The rebuilding of such a building for the purpose of paragraph 1 of the Third Schedule may be carried out anywhere within the curtilage of the building as it existed on 1 July 1948. No charge is payable provided that the cubic content of the original building is not exceeded by more than one-tenth.

Under the provisions of Section 112 (2), the upper storeys of the commercial building could be demolished and replaced by a separate building within the original curtilage without attracting development charge, provided the cubic content of the two buildings so produced did not exceed that of the original building by more than one-tenth, and provided, of course, that no material change of use was involved as well. Q. A owned a long narrow freehold property with street frontage at each end. On one of these frontages stood a house of 40,000 cu. ft. destroyed by enemy action on which he has received value payment. B. purchases the property and knows he can build one new house of 40,000 cu. ft. plus 10 per cent, i.e. 44,000 cu. ft. on the site of the old house without incurring development charge. Can he rebuild such a house on the opposite frontage without incurring development charge?

A. The answer is Yes, because it is within

the old limit.

Q. Can he instead of doing that split the allowable cubic capacity and build two houses each of 22,000 cu. ft., one on each frontage, without incurring development charge (one for his own occupancy and the other to let on a repairing lease or to sell)? A. No, that is not, in the view of the Board, a rebuilding of the old house but is the building of two new houses. One of these houses would be free of charge. One would have to pay charge.

Q. Has it any bearing on the case if he lets one of the houses, and the garden is shared

in common?

A. I am not quite sure what is meant by that. I think it might conceivably affect the amount of the valuation of the development charge to a small degree. Otherwise it has no bearing.

Q. Has it any bearing if he divides the property and sells one of the two houses? A. After the development has taken place and the charge has been paid he can sell as

he likes, to whom he likes.

Q. In determining the development charge on the reconstruction of central urban properties, what view will the Central Land Board take of re-allocation of multiple uses (i.e. shops, hotels, offices, etc. in one building) within the 10 per cent cubic increase? Within a 10 per cent total cubic increase can the distribution of use capacity be varied at will?

A. Not quite. May I give you an example of how it works? If you have a building of 10,000 cube with one use at 6,000 and one at 4,000, you can increase either the 6,000 or the 4,000 one without charge by 10 per cent. If in addition to that the building as a whole is increased by the permitted 10 per cent, making the 10,000 cu. ft. into 11,000 cu. ft., neither of the two uses must exceed in one case 60 per cent plus 10 per cent which is 66 per cent and in the other 40 per cent plus 10 per cent which is 44 per cent. In other words, you have a fairly wide variety of change, but the answer must produce no more than 10 per cent

variant on the existing use.

Q. Will the development charge be influenced by the quality of the development? A. That seems to me an important question. Yes, if the planning permission actually mentions quality. I have in mind two extremes—at the bottom, planning consent for a temporary period for a tin shack. The development charge, of course, will take quality into account. Equally, if the planning permission dictates superior quality as an obligation, the development charge will also take it into account. Whether that produces more charge or less you must wait and see Sir Roydon's answers. But in the normal case we shall assess charge on the basis of a decent but not extravagant quality. I hope this is a fair answer to the question. We are particularly hopeful nothing in this development charge procedure will prevent you from designing the best possible building, and may I say rather bluntly that I hope the Institute will help us to do it. May I add, as a last point on that question, it is important to remember that what we assess in the way of development charge is the increased value due to the permission to build and not the increased value of the building, which again I think entitles me to give a favourable answer to the question. Q. Can development charge be assessed in

relation to groups of buildings or sites included in comprehensive redevelopment? A. Yes, development charge can be

assessed in respect of such groups. Q. Will, in that case, Third Schedule and user rights be applied to the amalgamated

sites?

A. If the comprehensive site contains, say, ten buildings of 20,000 cu. ft. each, it is not permissible to erect, free of development charge, five new buildings totalling between them ten times 20,000-200,000-plus 10 per cent-210,000. That is not the rebuilding of the ten existing buildings. Butand this I take it is in favour of a smaller charge—the bottom figure for development charge will be the value for the existing development-that is, the ten buildingsassuming that each of them can be extended by the 10 per cent permitted if, of course, space and bye-laws permit. I find some people are thinking the 10 per cent is a gift. You cannot have it, of course, if you have not got a piece of land already to put it on.

Q. It is believed that the method of cubing buildings in connection with the Act is only loosely defined as 'by normal surveying

methods.'

A. That is true. It is not defined at all.

Q. Will the Central Land Board accept the standard methods of computation as

formulated by the R.I.B.A. in the Meinorandum issued in 1927 for the guidance of members of the Institute?

A. I am told that your cubing-of-building memorandum-and, indeed, it says so-is primarily designed in order to arrive at common standards of measurement for costing. It is not quite apt for our job, which is intended to be a factual estimate of the site. May I give you an example? Your own memorandum says in the case of a flat roof you measure a hypothetical 2 ft. above the roof. Obviously for getting the factual size of the building, or 10 per cent, that particular bit is not apt. Secondly, you do not go down below the top concrete foundation for costing. When you are measuring the actual cubic content of the building I assume it would be right

Having made this small point, I want to say: Can not you do it as you have always done, and then we shall be content? I have already been asked what is the proper method to cube a lattice-work steel bridge, Q. Why do the Central Land Board decline to accept the signature of an architect on Form D.1 for development charge and

S.1 for claim?

A. We do not decline to accept it. May I explain? Any person—an architect, or anybody else-can sign any of these forms, provided they are authorized. That is the first point. We do require authority. When that authority is given we will never deal with anyone else. If the owner wants an agent, we deal with the agent. I hope you will support us in this because it is quite hopeless to deal with both. If the owner wishes you to handle his affairs for him, he must authorize you to go through with the job and agree on his behalf.

There is another question on Form S.1 that the questioner might have in mind, dealing with valuation. The optional questions, 26, 27 and 28, have to be signed, and it is quite a separate signature-not the signature to the claim form-by a person professionally experienced in the valuation of land. A very great number of members of this Institute are so experienced. I hope I am not being discourteous in saying that a good number are not, too. I have not got any definition, and nobody else has, but I am going to suggest two formulæ for you. One is, Have you been in the habit in your profession of charging fees to clients for making valuations? That you yourself know. If you have, you are professionally experienced. Secondly, what would a jury of your own members say to you if you said you were professionally experienced in valuation? That, in my view, is the best test. You can answer that yourselves. You know everybody knows-I think, what their brother professionals can do, and we can not define it more accurately. In Scotland some solicitors are chartered surveyors. They are professionally qualified in both professions. A great many of your members are qualified in the Chartered Surveyors Institution as well as in this Institute. All of these and many others can sign that certificate.

Q. The development charge is already

taking on, in the public mind, the aspect of an imposition, and essential 'cost' of planning; the disservice to the cause of planning is obvious, if incalculable. Do the Board intend to counteract this situation by relating the extent of the charge to the value to planning of each development?

A. No development charge can in law—note those words—exceed the increased value due to planning permission. Therefore I think I can fairly answer, Yes, to that question—I think for different reasons

from the questioner's.

Q. If an architect was conducting his practice from his private house prior to 1 July 1948, it is assumed that he could continue to do so after that date and be exempt from development charge.

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Q. If an architect, after I July 1948 commences to conduct his practice from his private house would that be a change of use

involving development charge?

A. Yes, a change from a house to an office is clearly a material change of use. I do want to say, however, that we are not out to look for small things. All users must be judged on their merits. I am not suggesting, for example, that anybody reading Sir Banister Fletcher's History of Architecture in the evening is conducting his office affairs there! The practical answer to this problem is that if this is a change of use, there will have to be planning consent, and if you have to get it you are liable in law to development charge. Whether the charge comes to more than nought is a matter of detailed enquiry on the case.

Q. Would the fact of an architect holding a valuer's licence be a qualification in connection with assessing loss of development

value and development charge?

A. No, because a valuer's licence, I gather, includes things like selling stamps as well as land, so that it is no guide in itself.

Q. An architect says he has been consulted by a chartered surveyor who has been instructed to make a claim on the £300 million in respect of a big property and wants the assistance of the architect to tell him the cube of the building that is likely to be permitted. Is this a proper method of arriving at values?

A. A proper method in appropriate cases but not the only method. I do express the hope that everybody is not going to produce full working drawings for the purpose of a

claim under Part VI.

Q. If a person has bought a plot of land for building a house for his own occupation before 1 July 1948 he is entitled to set-off development charge against his claim on the £300 million if he builds before 7 January 1952.

A. Yes that is so, provided he claims on S.1 by the due date. (30 June 1949.)

Q. It may be that, owing to the restrictions on the permissible size of new houses, he may not be able to erect on his land a house of the size appropriate to the neighbourhood and it may have to be built in two instalments. Can the development charge be assessed for the whole development and the whole of the development charge set off against the Fund?

A. In these circumstances any development charge payable on the first instalment will not be payable in cash and will be set off. Presumably the second instalment of the house will be built after the pay-out date, 1 July 1953. No question of set-off can then arise because the claim will have been paid. If anybody says, What will happen if it is before 1953, I am going to say, Wait for the case.

VERBAL QUESTIONS AND ANSWERS

Q. With reference to Form S.1, it has been stated by the Central Land Board that the same consideration will be given to a claim if the optional clauses, 26, 27 and 28, are left blank as would be given if they are filled in by a professional adviser. If this is the case why should a claimant bear the very heavy expense attached to making an estimate of unrestricted and restricted value, which in many cases involves not only accurate surveys of buildings but also hypothetical problems of space, especially as contributions under this expense head can only be partial?

A. Of course we shall: we shall do our best whether the figures are there or not.

As to the second part of the question, that is clearly for the client. So far as the Central Land Board is concerned—I am speaking in the presence of the Chief Valuer—we want the best professional advice and figures on the other side that we can have. That helps him and us to do justice, not only to those who have advisers but to those who have not. Having said that, I am bound to repeat that the questions are optional, and we shall do our best in the way of justice whether the figures are there or not.

Q. On cubic content, the London Building Act prescribes two measures. One method begins from the upper side of the lowest floor. The other method is the method taking half the foundation. When one bears in mind that the intention of the Third Schedule is to preserve, to owners of property, their existing rights, rights in respect of which, of course, they can not make a claim under Part VI of this Act, it may be that if one of these methods is taken injustice may be done, because the owners of a building at present on poor foundations may well have to put in very deep foundations.

A. For Part VI, where this cubing is only relevant to a valuation of the property, extreme accuracy does not matter. I appreciate that later on when we have extensions for development charge, probably some people will argue about every cubic foot. Therefore it might be desirable, for these development charges, to get some agreed definition. If that is thought desirable there is nothing we would like more than to consult this Institute and get the best possible advice we can have. May I repeat that for the purpose of claims now, I really honestly do not think it makes any difference which of the two, three or four methods you adopt, provided you get near enough for the purpose of the chartered surveyor putting a valuation on it.

Q. How far are the Central Land Board

and the Valuation Office prepared to go in disclosing their interpretation of the Third Schedule? A developer may, for instance, wish to carry out some development, but may say that does not involve a charge at all. Of course, if the Central Land Board then assess a charge, he can then go to the Courts, because he will say they are making an assessment that is not within their power. A. Agreed.

Q. Later on the next case comes along. But this has certain rights under the Third Schedule. The Central Land Board agree with these rights, but interpret, perhaps, the Third Schedule in a different way to the way in which the developer does. Are the Central Land Board prepared to disclose

their interpretation?

A. Yes. I am prepared to be bold enough to give answers to any questions on the meaning of the Third Schedule if I think I know the answer. I think it is only fair that the Central Land Board should announce what they think it means in any section of the Act they have to administer. But it was very properly pointed out that a great many of these matters will be taken to the Courts sooner or later and sooner or later the Third Schedule will come before a Judge. I am prepared to say what I think it means until such time as the Judge tells me that I am wrong.

Q. There seems to be a general feeling that one of the effects of the Act will be to prevent people from selling land at all now that the normal profit motive has gone. Do you consider that the powers of compulsory purchase will be effective in making people sell land, and if not has the Board other

methods in mind?

A. You mention the profit motive. I am going to ask a question myself. What is the motive which induces a person to sell a farm at farm value? They are bought and sold. I am told a great many professional men make their living on it.

Q. Could you give us an example of where the Central Land Board would discuss the development charge prior to planning consent being asked for? In what circum-

stances would they do this?

A. The example that occurs to me is this: in the case of two alternative possibilities on two sites with a very expensive building in mind it would be waste of time to get out the detailed drawings until it was known how far the choice of site was to be influenced by the main development charge. That is only one example.

I hope my audience will realize that this approach can only be of an informal character. You can not expect people—they would not like it—filling in Form D.1 for five sites—to ask for the charge to be formally determined for all. But we can and do informally discuss all these matters, and I suggest those of you who are used to dealing with the District Valuer will carry on in the same way. I hope the Chief Valuer does not disagree with what I am saying, but if you can deal with him informally in the way you have often had to deal with him before, you will not go far wrong. Q. It may not be the part of the Board and Sir Malcolm to admit injustice in the Act,

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but there is a case of a client who was given three days to find a piece of land on which he would be granted a licence in a provincial town where it is very difficult. He had to pay £560 for half an acre, and now the development charge is what Sir Malcolm knows. I feel this is gross injustice

A. So do I, and I am doing my best to stop it by persuading people not to do these stupid things. I believe, with the full concurrence of the Minister, local authorities have been asked to extend the time-limit of licences. I fully agree with the questioner that where there is bargaining there is a risk of losing the licence, and I should be extremely grateful to be informed of cases where an extension has been refused when the person can not get a piece of land at a fair value under this Act. I hope you will all help in every possible way. Some local authorities know about this; others do not. I have had no evidence that a local authority has yet refused to accept a request of this kind.

Q. You cannot build a house until you have land to put it on, and there are these difficulties. I agree that exploitation of the value of land is absolutely wrong, but is it not equally morally wrong for the State to be an exploiter because the other

person is?

A. Could you tell me why you think, in your example, there is exploitation and

who is exploited?

Q. The particular client badly needs a house. He must have land to put it on. There is no land to buy except at this high value. He is forced to buy for that amount of money. The State then forces him to pay an almost equal amount just because of his predicament.

A. I am not here to defend the State, but it occurs to me that somebody else may have

been exploiting.

Q. If the District Valuer and the valuer acting for the developer fail to agree has the developer any right to appeal?

A. No; there are two alternatives under this Act. This could have been done by the Act saying the development charge was to be assessed under a particular formula, in which case it would have been right to appeal. Parliament decided against that because, if there had been a formula, development charges would have been very much higher than they are now. We are selling something, and I and the Chief Valuer will do our best-he will have a heavy load-to agree a price. In the last resort, however, we are in the position of a vendor, and there is no appeal yet, so far as I know, against the refusal of the vendor to sell his property.

Q. If the developer knows his proposed building is exempt from development charge—for example, with reconstituted war damage premises—does he have to fill up D.1, or can he start to build without any exemption certificate from the Central

Land Board?

A. We have stated in our pamphlet on development charge, D.I.A. that there are some operations or changes of use which, though development within the definition,

are exempt by Act or regulations from the payment of development charge. Paragraph 12 of the pamphlet sets out the common cases. If the work you propose to carry out or the new use of the land proposed is clearly within paragraph 12, you need not apply to the Board for the determination of charge but you may ask for a confirmation that no charge is payable. That is to say, if you know your rights, you need not come near us. If you are in doubt you can ask. At the moment, very naturally -and I am not in any way complaining for the moment-an unnecessarily large number of people are applying for exemption certificates. I think this is very natural in the early days, but it is unnecessary for anybody who is certain.

Q. In the case of churches, I have been told to fill in the form, although I know beforehand the development is exempt, and I have to go through all the motions, making more work for you and more for us.

A. I realize that a lot of local authorities perhaps do not understand this and are telling people to send in these forms. We have sent a notice to local authorities, but they do not all know it yet. Those of you who have heard me will perhaps feel strong enough to say to the local authority, 'I will not send that in.' They have no power to compel it.

Q. Development charge is assessed on planning consent, and you gave the example of an acre of land where planning consent was granted for, say, five houses. The development charge in question can be assessed at that stage—the stage of the planning consent for houses. Assuming someone, if it were divided into five equal plots, could build a 50,000 cu. ft. house in one plot, 10,000 in another plot, would there be the same development charge?

4. Theoretically it might be, but in prac-

A. Theoretically it might be, but in practice I do not think it will happen. If that sort of thing does become practical politics we shall be forced to ask for working drawings to be sent in.

Q. Where a building reverts to its previous use, can you get your money back?

A. No, because it can not 'revert' to its previous use. You always have the right to go back again to the use for which the development charge has been paid.

Q. We may have the case of a person who retires and wants a small cottage and buys half-an-acre of land because he happens to be fond of gardening and runs part of it as an allotment. As far as I can see now the charge is dependent on the area of land. Is it possible for planning permission to be obtained for one-eighth so far as the house is concerned, the rest to be used purely as an allotment for the present, the man living in that house.

A. It is a very important question. We are asked, does an excess garden attract more charge. May I tell you a story? People can put in for planning consent for a house confined exactly to the area of the foundations and without a garden. Therefore, they say, the charge is very small. But it is not, because the value is the value to use that piece of land in conjunction with the next piece which we know is going to be a

garden, so the charge will be absolutely identical, whether it is done that way or the other and more normal way.

On the other hand the benefit of the right to put up a house upon a quarter of an acre of land, if it were more than the right to put it up on one-eighth of an acre, would attract a higher charge if it has a genuine allotment.

Q. An old manor house has received planning consent for conversion into flats. It stands in its own ground. The licence is issued for conversion and the work starts. When the work starts the architect decides that the property is not worth spending money on, owing to deathwatch beetle. Planning consent is then given for pulling down the house and rebuilding four separate houses. Would you say whether a

development charge would be payable in that case. The first was consent to make four separate dwellings but within the walls of the old house.

A. I am afraid it will. We have to construe that Schedule. It says the building can be rebuilt. I do not believe anybody in this audience would call that rebuilding. The first example is not rebuilding but just altering. The second is a new purpose, and I think nobcdy would say it was not. But this is the nice way of looking at it. Do not forget that the bottom value for charge has already a heavy housing value loaded into it, and the difference between the top and the bottom value may be quite small, and may be nought. I hope you appreciate what I am saying. There is all the difference between a virgin plot of land that starts with a bottom agricultural value. Yours starts with a bottom agricultural value as the house value, so the development charge must be considerably less than on a virgin

VOTE OF THANKS

The President: I will now call upon Mr. T. Cecil Howitt, M.C. [F], to move a vote of thanks to Sir Malcolm Trustram Eve.

Mr. T. Cecil Howitt: As the Chairman of the Practice Committee it is my privilege, and, indeed, a very great pleasure, to propose a hearty vote of thanks to Sir Malcolm for his very interesting talk tonight. It has been my good fortune to work under Sir Malcolm for the past seven or eight years, and I expected he would be ready here tonight to solve all the difficult queries that might be raised. He has a very charming Sherlock Holmes manner of saying, 'Elementary, my dear Watson!'

Now I would like to express on behalf of the whole of the architects here our admiration of one who, I might say, enters the lion's den and attempts to soothe the architectural beast before the beast is mildly diverted. He might have thought that he is looked upon as the man with the gun, although life is not at stake, fortunately, but money and property may be. I am equally sure he might consider it most unfortunate if the present feeling of having to stand and deliver were to increase. In the past II purchaser of land might have varying ideas. Now it is either pay, or no building. If you will allow a selfish thought,

it is what some architects fear-that there may be no building. That is perhaps an exaggeration. Development charge may prove rather a brake on development for ome lime to come. How long to my mind entirely depends upon the Board's operaion of the Act. I can only hope that Sir Malcolm will bring his very considerable powers and influence to bear to see that we carry out the good old English motto, which reads: 'It is not their money you are after, but good planning.' Let us try to remember the Town and Country Planning Act is not a development charge act, as some feared it might be.

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Having possibly trodden on rather dangerous ground in rather a friendly way, it is now my pleasant duty to propose a very hearty vote of thanks to Sir Malcolm. The President: I will now call upon Mr. Arthur Bailey, O.B.E. [F], to second the vote of thanks to Sir Malcolm Trustram Eve.

Mr. Arthur Bailey: It gives me very great pleasure to second the vote of thanks to Sir Malcolm for coming to talk to us this evening. It is a clear indication of his desire to co-operate in working this most difficult Act. We all know his great ability and experience, and it does not need any comment from me to enlarge on what we have heard tonight. But perhaps I might be excused in saying that quite apart from his policy, it is only right and fit that he should now be given an opportunity of reimbursing the Treasury coffers up to the very substantial sum he has been distributing in the last few years.

He mentioned the working of the Act, and it has already been brought to our notice in more ways than one what extreme difficulties we private practitioners have in I hesitate to say 'selling' the Act to the public. But it is surprising how many of our clients are not informed of the various problems arising before they come to us, their advisers. As far as we are concerned, am afraid there is a tendency with some people to look upon us as agents of Government Departments, particularly when we are trying to carry out-it may belicensing restrictions or looking into a large development charge. Realizing this, I hope Sir Malcolm will be able to give us the help we need, and I want to put one or two points to him.

My first point concerns the extreme ifficulty of getting in touch with all the documents that have been issued in connection with this Act. I am going to ask Sir Malcolm if he will be good enough to issue what we used to call during the war consolidated circulars from time to time. It is a great source of confidence to have a document on hand which is kept up to date. Perhaps that document could also include the various notes on information from the Ministry of Town and Country Planning, and something on the lines of practice notes which have already helped us with war damage repairs. It would then be even more helpful.

My second point concerns the possibility of simplifying the various forms. I need hardly remind Sir Malcolm again of this difficulty, because people have no doubt been talking to him a lot about it in the past. But I think we should remind Sir Malcolm that in order to obtain permission for a £1,500 house we have to fill in no less than twelve forms, supply four copies of drawings and one specification. That excludes office copies of the various permits and so on, which builders deal with in connection with materials. The cost of dealing with these documents is almost equal to the scale fee of preparing the working drawings and carrying the job up to contract stage for a house of similar size pre-war. Sir Malcolm might care to look at questions like this in complete impartiality, and I would like to propose to him that the machinery for operating this Act of Parliament be reviewed in consultation with the institutions concerned. It would be something on parallel lines with the arrangement that his Deputy Commissioners adopted in connection with the War Damage Commission, but it would give us an opportunity of presenting our difficulties to the Central Land Board and the Ministry of Town and Country Planning before the various decisions are taken and the regulations are put into print. If we could come in at that early stage-and we know something of the practical difficulties of running a private practice-I am sure our path would be made easier.

My remarks have been directed towards the working of the Act. I would like to emphasize that the Town and Country Planning Act must be the means and not the end. The end is always good building, and that is our real interest. We all know the weathering down process, and after all this mellowing process has had time to take effect and remove some of the anomalies of the Act, I am quite sure it will take its place in the normal pattern of building affairs. I have very great pleasure in seconding Mr. Cecil Howitt's vote of thanks to Sir Malcolm Trustram Eve.

Sir Malcolm Trustram Eve: I was particularly gratified that Mr. Howitt and Mr. Bailey were selected to propose and second this vote of thanks, because both of them worked with me in the war. Mr. Howitt, as he has told you, has been Deputy Commissioner from the beginning of the War Damage Commission. Mr. Bailey and I have worked together on London repairs during the fly bombs, and it was very nice indeed to think that they were doing it.

May I just mention the points that they raised. I entirely accept that the test of the Central Land Board is that they shall not be a brake on development. We have just got to see they are not. They must not be a brake either by slowing up or preventing or hindering the proper desire of those who want to develop. I agree also that you can not possibly get this new scheme in order in two minutes. I agree that there are bound to be troubles in the early stages. But we must get them out of the way in the quickest possible time in order to see that the desirable result is reached.

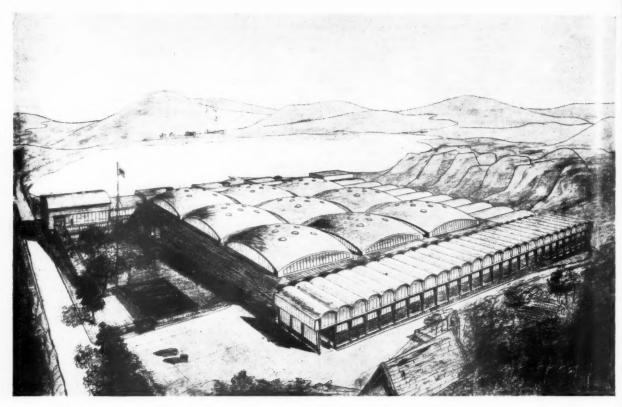
Mr. Bailey mentioned three matters which I would like to spend a moment on. He said first of all he would like some consolidation of documents. I agree with him, and the Board has already decided to do it.

He raised a much wider point than that, and asked whether we could issue practice notes as we used to do in the War Damage Commission. We are going to, but we must be very careful that there is a practice to note, and we want a little more experience before we blossom out into a formal document which gets into notes and is quoted against us on every possible occasion. Directly we have enough to be quite sure we are on right lines we propose to issue a document, and I very much hope we shall issue the first early next year.

He then asked whether something could be done to simplify the number of forms. I would say at once—I think you, Mr. President, know it, but I want the members to know—that the doors of Devonshire House, our office in Piccadilly, are open to any of the representatives of this Institute any time they care to come, and we have always-we did it on war damage-welcomed informal discussion. On the actual question of trying to reduce the number of these forms I could not agree more with Mr. Bailey. I would like him to study, before he votes too strongly in favour of alteration, the alternative position under this Act in Scotland, where they have a consolidated form already. The argument in England was that it should be the other way round. I am not quite sure which is right, but do not blame me if you have this consolidated form with all these twelve things in one. There are arguments both ways on the point, but I would be very glad to discuss it.

May I end by asking you this? You were kind enough to pass a vote of thanks. I want you to know that Sir Royden, Sir Robert and myself and some of my other staff are here this evening, and the thanks are not all on one side. We learn tremendously at these meetings. We learn all the questions on which there is a rub for the practitioner. I have attempted to answer quite bluntly the questions put to me today. I was not quite so certain about some of the answers as I appeared to be. When you get back home we shall find it extremely useful to have heard this discussion, and the thanks are from us to you. You have been kind enough to let me come here and hear your questions, and between us I think we shall make this thing work—and I will end with Mr. Howitt's words-without any brake on development.



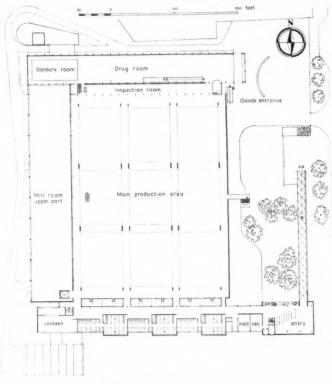


Rubber Factory at Brynmawr, South Wales

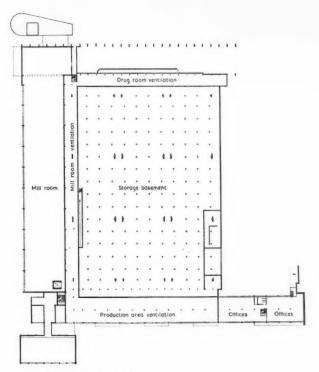
Architects' Co-operative
Partnership: C. K. Capon, A.A.Dipl. [A], P. L. Cocke, A.A.Dipl. [A], M. H. Cooke Yarborough, A.A.Dipl. [A], A. W. Cox, A.A.Dipl. [A], L. M. De Syllas, A.A.Dipl. [A], J. M. Grice, A.A.Dipl. [A], M. A. R. Powers, A.A.Dipl. (U.S.A.).

THIS FACTORY, built for Wales and Monmouthshire Industrial Estates Ltd., and to be leased to Brynmawr Rubber, Ltd., is at present under construction. The boiler house block is complete except for installations and internal finishes, and the factory is well advanced, completion being expected in 1950. The factory will employ up to 1,000 persons.

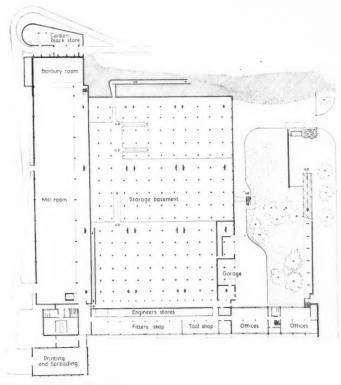
An item of great interest to architects is the use of shell construction, though this is only one feature of a scheme presenting several unusual points. Reinforced concrete construction is used throughout, giving an estimated saving of steel of about 65 per cent compared with a comparable construction in structural steel. With the ex-



Plan of the upper ground (main) floor



Plan of the mezzanine level



Plan of the storage basement

ception of the South block, which houses the administrative and welfare departments and which is a normal reinforced concrete frame structure with flat roofs, the building is roofed with concrete shell barrel vaults and shell domes. For parts of the building (the Drug room, Banbury room, Mill room and Printing and Spreading department) the requirements of the industry are specific, and the rooms are designed to house particular plant which is unlikely to change in design for a considerable time.

For the main production area a working space of about 72,000 sq. ft. was required, with as few structural supports as possible breaking up the floor space. Plant in this area is comparatively light, and may change frequently, depending on external market requirements. Accordingly, the whole of the floor area, which has beneath it a storage basement, is pierced at approximately 6 ft. centres by 7 in. square holes, allowing services to machines to be brought up from below at almost any point. A hole not in use is covered with a standard cast iron cover screwed down flush with the floor.

Dust is a major problem in the rubber industry and the structure has been designed to keep to a minimum the number of ledges and projections on which dust can settle. As far as possible all services are designed as an integral part of the structure. At the same time, as much flexibility as possible has been allowed for, so that alterations or additions to the installations can be carried out without structural alterations.

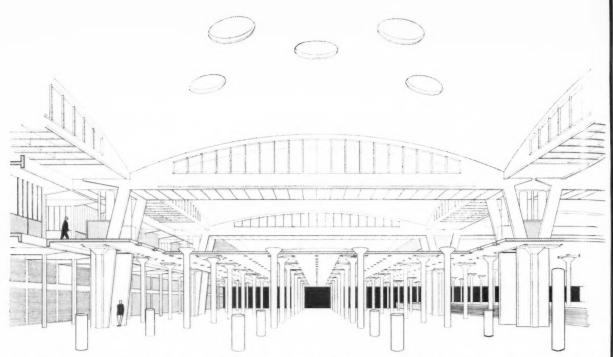
All production areas of the factory are heated by warm air and mechanically ventilated. Fresh air is drawn into ventilation rooms at mezzanine level, warmed, and circulated through ducts in the storage basement below the floor of the main production area. From the basement the air is taken vertically at the roof supports to horizontal ducts in the valleys between the domes, whence it is fed at high level into each bay of the main production area. It is extracted at low level into the basement and returns to the ventilation rooms, using the basement itself as a duct. It is then either recirculated or discharged through outlet funnels. The Mill room and Drug room are warmed and ventilated by a similar system.

All ventilation rooms are at mezzanine level, and are intercommunicating. Machinery can be serviced and adjusted without the mechanic entering the production areas of the factory. In the South block offices and lavatories are heated by hot water radiant floor panels, and ventilation

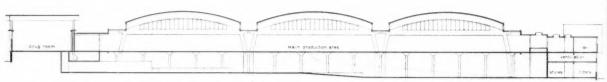
of the offices is natural.

The factory is entirely dependent on road transport for intake of raw material and output of finished goods. The only rail service is to the boiler house, which is coalfired; the boilers—owing to a natural fall in the ground—are about 25 ft. below rail level. A railway line extends from existing sidings over the top of coal hoppers, into which the coal is emptied direct from trucks and gravity-fed to the boilers. The boiler house is on the other side of the main

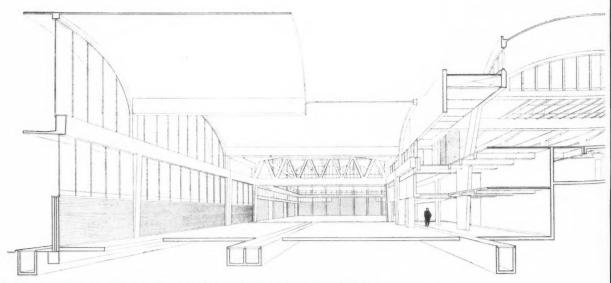
(continued on page 114)



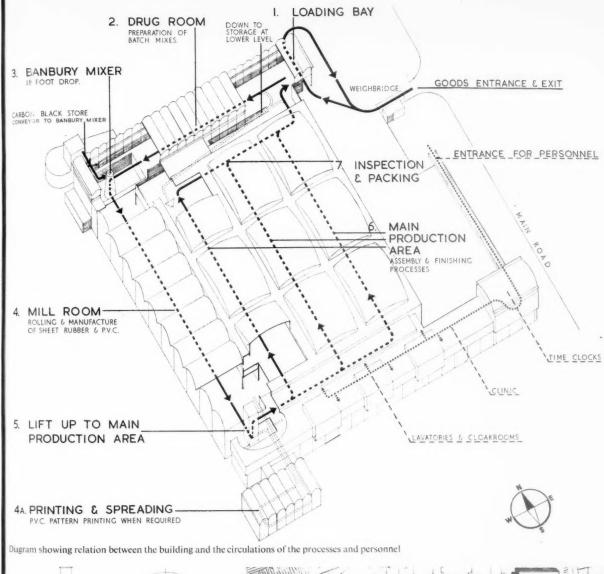
Sectioned perspective showing the form of the reinforced concrete structure of the main production area with storage basement below, and the method of lighting through and at the sides of the shell domes

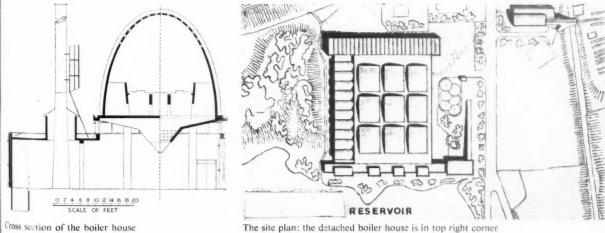


North-South section through the centre of the factory



Sectioned perspective through the mill room with the main production area on the right



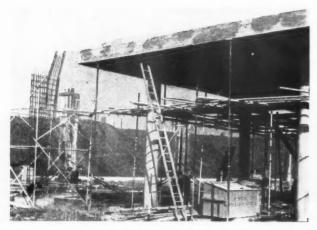


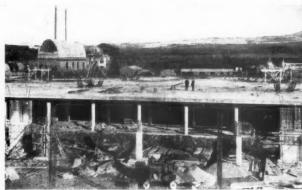
Cross section of the boiler house

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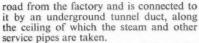
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There is only one entrance and exit for traffic to the factory, and only one entrance for employees. These are so arranged that they can be controlled from one point, thereby reducing to a minimum supervisory staff. All employees—factory as well as office workers—use the same entrance.

The labour department and clinic are planned near to the entrance so that applicants for employment can be interviewed without having to go into the factory itself.

The cloakroom and lavatories are con-





Above: three views of the building under construction showing examples of reinforced concrete work

centrated in one part of the building and are placed on the way from the entrance hall to the working part of the factory. They are split up into three main sections so that they can be adjusted if the balance of employment in sexes should change in the future.

The canteen is comparatively small for the number of persons employed, but, should it prove popular, provision has been made for an extension with a separate and larger canteen to the west of the south block.

Consulting Engineer: Mr. Ove Arup M.I.Struct.E., E.M.Ing.F. Heating Consultants: J. Varming and Partners. Electrical Consultants: Couzens and Brown Drainage Consultants: A. P. I. Cotterell. Quantity Surveyors: Davis, Belfield and Everest.

Full-scale Trials on House Heating Systems

By Richard Eve B.Arch. [A], of the Building Research Station

Read at a Meeting of the R.I.B.A. Architectural Science Board on 7 December 1948, C. C. Handisyde [A] in the Chair

The paper was preceded by a film, 'Heat Research for Houses,' and was illustrated by slides.

The film will have given you an idea of the scale and nature of the operation on which the Heating Section of the Building Research Station is engaged. It will fail to satisfy many of you because it does not give any results. This is inevitable, because the film was made last winter, at a time when few results were discernible, and certainly not ascertainable upon a statistical basis.

Since last spring we have been at work sorting and analysing the data for the Unoccupied Period. What you have just seen may have been sufficient for you to realize that this has been no small task. The first report has been published in the JOURNAL of this Institute for November 1948. This deals with the economics of house heating. We chose that subject as the first point of attack because the report of the Egerton Committee (Post-War Building Study No. 19 'The Heating and Ventilation of Dwellings') stressed the need of such information to the extent that it may be regarded as the raison d'être of our trials. We arranged for the first paper to appear in the JOURNAL prior to this meeting because we realized that even if we confined ourselves to the minimum of material we would run well beyond a reasonable time for reading a paper—and that it would be choc-a-bloc with figures which would require some contemplation before they could be discussed. It is the discussion tonight that interests us in the Building Research Station, because from it we hope to gather a general picture of the views of architects and other interested parties in this matter and so arrange our further attack upon our as yet unsorted data. Before this general discussion takes place I shall recapitulate the main points of the paper and, endeavouring to use the minimum of figures, point the significance of some of the findings.

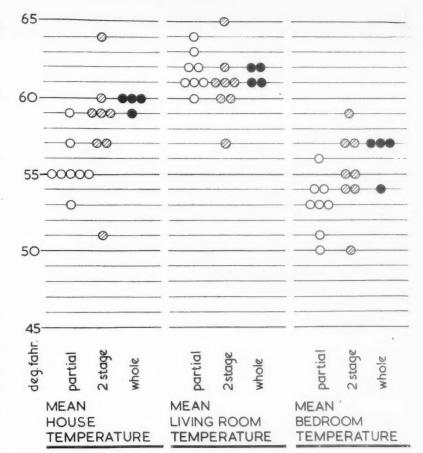


Fig. 1

To complete the picture given by the film we must first go back a step to the description of the experiment. Omitted from the film is the division of the nineteen different heating systems into three categories on the basis of the space-heating service that it was intended the systems would provide. At the time of making the film it was uncertain if this would prove of value. It has now been shown that not only is this valuable, but that there is a rough correlation between the heat service anticipated and the heat service supplied. This correlation can be seen in Table III of the report in the JOURNAL; in it the houses are arranged in order of anticipated heat service and the degree of heating is instanced in several ways. A detailed study of this table-which is itself a summary of much more extensive data-is not possible here. but the broad division of the nineteen heating systems into three categories is very helpful.

The three categories are called Partial Systems, Two-Stage Systems and Whole House Systems—and the names are descriptive. In a house with a Partial System, the living-room only is equipped with a space-heating device, a solid fuel appliance that is an open fire or that has the main

features of an open fire; the kitchen gets wild heat from the cooker and from any waterheating device installed; the bedrooms are unheated. In a Two-Stage System the principle of background heating with toppingup is used. In all except one of these systems the background heat is provided by convected warm air; in the exception, hot water is distributed through radiators for the background heating. Topping-up in the bedrooms with both methods of background heating is either by gas or electricity. Thus in this group the living-rooms and bedrooms are capable of being fully heated; the halls have some heating appliances in them, and so have the bathrooms. In the third group, the Whole House Heating System, it should be possible to maintain a temperature increase of 30 degrees Fahrenheit above outside temperature all over the house.

The first slide (Fig. 1) shows how the different characteristics between the three groups emerged during the first heating season. This column on your left-hand side shows the mean house temperature for each of the three different groups. The Partial Systems are indicated by the unfilled circles, the Two-Stage by the hatched circles, and the Whole House by the blacked-in circles.

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The mean house temperature is the average over the whole heating season of thirty-three weeks for the temperatures of all the rooms in a house.

In the first column notice that the mean house temperatures of the Partial Systems are around, roughly speaking, the 55 degree Fahrenheit line, of the Two-Stage around the 59 degree line, and of the Whole House Systems around the 60 degree line. The next column shows the mean living-room temperatures, which are the average over the heating season of the temperatures in the living-room of each house. Here the clustering for all groups is around the 61 degree mark with a certain amount of spread. The third column, the one on your right, shows the mean bedroom temperatures—which are, of course, the average of the temperatures for the heating season of all the bedrooms in a house. Here the Whole House Group cluster round the 56 degree line, the Two-Stage, with a very wide deviation, around the 55 line, and the Partial around the 53 line. This shows that the chief difference in the space heating offered lies not between the living-rooms but between the bedrooms and other parts of the house-such as the hall. The laggard in the Two-Stage Group is the same house in each column, House 32. And the highest of this group is also the same in each column, House 18, in which the influence of the solid fuel cooker is felt all over the house. This slide does not take into account the kitchens, except in arriving at the mean house temperatures; were the kitchen temperatures shown here it would be seen that the kitchen of House 18 reached unpleasant heights, which the housewife would have reduced by opening the windows and wasting the heat.

The houses in the Whole House Group are all thermostatically controlled and therefore approach the routine more closely than most of the others. You will notice that the mean bedroom temperatures in these houses are around 57 degrees. The routine required that the bedrooms should be in the 45-50 degree range except for two periods of one hour each morning and evening, when they should be heated to 55 degrees wherever possible. Even the unheated bedrooms in the Partial Group did not drop to the lower range in mean house

temperature.

It was a characteristic of the houses that they did not cool down overnight to anything like the degree expected. The next slide (Fig. 2) shows the mean hourly temperaturesthat is, the temperatures at each hour of the day averaged over the whole of the heating season-for the living-rooms of one house from each of the three groups. The experimental routine required is indicated by the shaded portions since ± 2.5 degrees was the tolerance allowed. At 7.30 a.m., when the fires were tended for the first time in the day, the rooms began to warm up, until by four o'clock in the afternoon the desired temperatures were reached. At 10 p.m. (22 hr.) the fires were tended for the last time and the overnight cooling down began. By morning the temperatures had dropped only to the level required by the routine for

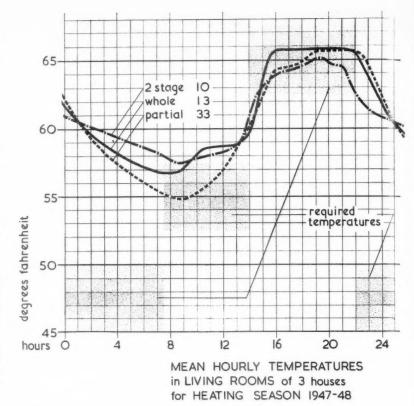


Fig. 2

the day period and had not entered the 45-50 degree range. In the coldest weather the diurnal fluctuations increased to about 15 degrees maximum in the Partial House. Then as the outside temperature dropped the peak inside temperature began to drop. That happened between 20-30 degrees F. daily temperatures. This study of house temperature can be prolonged to a great extent, and will be—but not here.

The point that emerges is that the houses were slow to cool down, and this is due partly to the better standard of insulation than is customarily found in traditional construction. The U values are slightly less than 0.20 for the walls, 0.17 for the roof, and 0.15 for the ground floor except when finished with tile, when it becomes 0.20; these conform very closely to the values recommended by the Egerton Committee. A second factor that contributed to keeping the houses warm overnight was that the windows were kept shut all the time, and the doors only opened to allow the staff to go about their work. Fresh air was supplied by the ventilation system and by infiltration around the doors and windows; half-way through the winter the exterior doors were weatherstripped because the air leakage around them was so great.

This subject of ventilation is a very large one, and the results are but touched on in the published paper. Let it suffice for the moment to say that the measurements showed that the fresh air entering the houses, on an average over the whole heating season, was twice that required by the recommendations of Post-War Building Study No. 19. At periods of low wind speed and high outside temperatures, a little more fresh air would have been required to give the recommended air changes, but the amount of fuel needed to heat this air would have been negligible.

Mr. Eve then summarized the data contained in the paper, "The Economics of House Heating", by Eve and Weston, published in the November 1948 Journal.

In closing my remarks I should like to draw to your attention that this is really a progress report on an experiment which is to continue for some years. May I remind you that this is not the final survey of the data obtained during the first season's operation, but rather the first survey of the first season's operations. We have much to publish and much of it will be of particular concern to architects, such as the temperature distribution in the various rooms, the efficacy of convected warm air systems and the whole subject of ventilaand comfort conditions as far as they can be assessed. Moreover, the houses have been occupied since last May.

While plans for future publication will be guided by the discussion tonight, some papers have already been definitely settled. On 2 March 1949, Mr. A. T. Pickles will give a paper on Post-War Research in Heating and Ventilation at the Building

Research Station; this will be delivered to the Institution of Heating and Ventilating Engineers. Dr. J. C. Weston will give a paper -late in March, I think—to the Institute of Fuel, when he will talk about The Efficiency of Domestic Heating. This paper will deal with the efficiencies both from the householder's and the national points of view. The first paper on ventilation will, I am afraid, be longer in coming forward and will not be available for some time as the experimental process is a slow one and the gathering of a large enough sample takes therefore considerably more time than does the rest of the work.

Before sitting down I would like to point out that my presence here is as a member of a large team. The work was not confined to the Building Research Station, although it impinged, I think, on almost every branch, and we obtained valuable assistance from many sources, notably the Chief Scientific Adviser's Division of the Ministry of Works and the Fuel Research Station. The gas, electricity and solid fuel industries, appliance manufacturers and many others have contributed to make this whole experiment possible. The degree of my dependence upon my team mates will become apparent if you become too scientific in your questions, for then I shall call on my colleague, Dr. Weston, to help me with the answer. Even with that assistance it may not be possible to give immediate answers to questions that require reference to figures. On page 134 appear our answers to questions for which data had to be consulted. It is also possible for you to ask questions that for answers would require complete reports. Though these questions may not be answered for some time to come. they are as welcome as any others because they will indicate the direction in which your interests lie.

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Mr. J. R. Kell said he felt sure those present would wish to join with him in thanking Mr. Richard Eve very much indeed for what was to him at any rate one of the most interesting papers he had ever listened to. Undoubtedly this was the largest and most comprehensive series of experiments that had ever taken place in any country of the world. Everyone would look forward to hearing of other aspects of the tests as they were unfolded.

In the short space of time available it was impossible to do other than touch on one or two points that came to mind. One had already been mentioned: the value of insulation in house construction. They had all come to realize that, he thought, and future building in this country should take it into account. The additional cost, whatever it might be—it could not represent much on the total cost of the house—was undoubtedly well worth while, not only for the saving of fuel but also for the health of the people living in the house.

With regard to the running of these systems, he was rather surprised to see the very poor response in getting up the temperature in the morning. It appeared to drop overnight—as one might expect—and

all three types of system slowly climbed, but full heat was not achieved until some time in the afternoon. That really was not good enough. Whether the systems had been operating in that way purposely or whether they were capable of operation in a different manner he did not know, but in practice this would not be satisfactory.

Mr. A. W. Kenyon [F] said it was most gratifying to see such a large attendance for a paper on house heating. Before the war, nobody would have thought in terms of the small house being heated, and the importance of this was only just beginning to be realized. An attempt had to be made, in one form or another, to carry out house heating, but this was the first opportunity that had presented itself of hearing what scientific research was doing. Architects, with the help of engineers, had been carrying out house heating in rather an amateurish way, and it was most helpful and gratifying to the architectural profession to be able to realize what whole house heating and partial heating was, and to know what was the cost of the various systems. Undoubtedly, the matter must be studied.

One of the troubles today, as those who did housing and flats for local authorities would know, was cost. Cost was everlastingly coming back at them.

An important point from the architect's point of view was that house heating could very definitely affect the planning of the house. He had been accustomed to design houses against draughts. He had designed houses very small, as well as with small rooms, whereas with a proper system of heating it might be possible to have a very much more open plan and to do away with little halls and passages, thereby getting a much more liveable house than where heating was concentrated in one or two rooms.

It was not possible, he realized, in the experiments, to try all the various types of heating, but he hoped that with the data obtained it would be possible to improve planning, doing away with quite a lot of corridor accommodation and using the whole house, as in other countries.

Insulation, of course, was extremely important, and they had all been trying to get it. At the moment, it was a matter of cost. It could not be afforded. He hoped, however, that that was only for the moment. The experiments described showed that the extremely low temperatures obtained with a house that was not insulated did not occur with proper insulation.

Mr. D. Cleave said colds, influenza, and so on were often attributed to draughty houses, and he wondered whether the medical profession were interested in this series of experiments.

In assessing capital costs, was the cost of insulating the house also taken into account or only the cost of the heating appliances? The two might appear to go together.

Mr. A. C. Hazel said he had a home which was designed more or less to conform to modern heating standards. He had a continuous burning convector fire and a boiler which heated the central heating system.

But he found he could not persuade his wife to keep on the radiators in the bedrooms because she thought it healthier to have a cold bedroom. Nor could he persuade her to keep the central heating on in the living-room when a continuous burning fire was on in normal circumstances.

A great deal had been said about the quality of the fuel used—about bituminous coal, for instance. Had any suggestions been put forward as to the calorific value

and quality of the coal?

Mr. T. C. Angus said that although he himself was not a medical man, he was in close touch with medical people. He had it on very good authority that people in North America suffered just as much from colds—and even more from rheumatism—as people in this country. The reason was that they had humidities in living-rooms down to 20 or 30 per cent; so dry did these rooms get that the air had to be humidified for the sake of comfort.

Mr. E. J. Blumsom said that up to the time when he had heard Mr. Eve, he had been an exponent of the two-part system. He thought it was regrettable that the Report did not contain tabular information regarding what was becoming one of the most popularly used systems at present-the closable fire with back boiler and convected warm air to bedrooms with gas or electric cooker. He felt convinced, from the results of experiments in his own laboratories, that he would be very unhappy if the impression were gathered generally by the meeting that the two-part system was out altogether. He felt sure tests ought to be undertaken on a modern example of one of these appliances.

Mr. G. C. Holliday said he agreed with nearly everything that had been said by the last speaker. One fundamental point ought to be mentioned with regard to the methods adopted in the tests, however. It was important to realize that the basis of comparison was space heating in relation to air temperature. The authors had said on page 15 that the view was taken that the object of heating appliances was to heat the whole room and not just the part in front of the fire. To people who had been brought up to respect the use of equivalent temperature measurement with eupathoscopes and globe thermometers as the more accurate indices of comfort (educated largely in that respect by the Research Station), this statement, especially when radiant heat sources were concerned, was open to serious criticism. What was really important was whether people in rooms were comfortable in practice. With radiant heat sources they could be more comfortable-and incidentally feel fresher-with lower temperatures than they could without radiant heat.

He hoped Ministries and local authorities would be persuaded to devote more attention, in new housing estates, to insulation. One interesting conclusion might be drawn from the temperature drop of 5 degrees to 7 degrees over-night, even in houses with solid fuel burning appliances. They were told they must have these appli-

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ances, but was there any need for an overnight burning appliance at all in an insulated house, and would there not be a net saving of fuel even if extra fuel was used first thing in the morning to make up for the

temperature drop?

The report did not mention the coal required in each house, but Dr. Weston would probably deal with that subject later. His own calculation was that, including gas and electricity, it varied from 3.8 to 7.3 tons as compared with an average of 5 tons in pre-war houses. This was perhaps the most important aspect of the problem, and in making comparisons the quantity of coal that had to be mined to provide the service must be taken into account. Various conclusions might be drawn from the different consumptions. Solid fuel cooking seemed to be exceptionally heavy on fuel. Alternative appliances for summer water heating would save fuel. That led to the question whether the Egerton figures of 250 gallons at 140°F of hot water per week were typical of working-class homes. All the evidence pointed to a much lower usage, and until hot baths were taken more frequently the figure would appear to be nearer to 150 gallons per week.

In connection with convected warm air and hot water appliances there seemed to be no doubt that using two appliances for these purposes was more expensive than using a combined appliance. Local authorities installed many of these dual-duty appliances: though in some instances convected air passed to bedrooms the system could be highly economical. The average efficiency was low in summer, and that justified the use of an auxiliary plant for water heating in summer. Bedroom temperatures in many houses were not widely different, whether or not warm air was conducted from the living-room appliances. Did the authors think ducting was really necessary? Would it not save fuel if in insulated houses heat were brought into bedrooms in less direct fashion? Perhaps some data might be

One very important advantage of the two-stage system should not be forgotten—its flexibility. It permitted the consumer to vary his standard of service according to his wishes and his means. Of the various possible two-stage systems, the one employing single solid fuel appliances for the main supply of hot water in winter with alternative fuel in summer and winter appeared to give the lowest fuel consumption. Both the whole house and two-stage systems had been subjected to investigation by the fuel industries, but it was far too early to say which would give the greater economy of fuel or provide the

obtained from House No. 11.

conditions.

Mr. Jack Pritchard said it was appropriate that the authors of the paper should have as Chairman of the meeting one who had been instrumental in getting the experiments so successfully achieved. The speaker had asked that the contributions to the discussion should be largely an attack on the problem of getting on to the next stage.

more acceptable service and comfortable

The results of the experiments were pretty clear, and it was about time to pass on.

The whole house heating in some form or other was the most economical. Most of the speakers seemed to have forgotten that a radiator or duct could be switched off and the heat be thereby localized in certain areas of the house. In that way it would be even more economical.

There would appear to be three points on the basis of which to move on to the next problem. First of all, it was time—and he hoped to hear this had been done—that manufacturers of appliances should be a little more enterprising and try to solve these problems more economically.

Secondly, there seemed to be a good deal of research required by both the architect and the manufacturer in trying to devise cheaper methods of whole house heating. The high first cost was a little startling. It was significant that these costs applied only to appliances and no account was taken of savings in the construction of the house.

Thirdly, a lot more work ought to be done to demonstrate to people the benefits of more efficient and economical methods of heating. It should, therefore, be urged that local authorities should build large numbers of the right kind of house. They should also find some way of solving the problem of first costs. Here they tended to insist on the necessity of low first costs, thereby bringing about high running costs. This must be avoided in some way. Something might be done on the lines adopted by the Federal Housing Authority of America, where efficiency of appliance was definitely related to the loan.

Mr. C. A. Masterman pointed out that at the meeting of the British Association Sir Henry Tizard had pressed not so much for more research as that the results of research should be applied to the problems of the day. These very ambitious trials were an outstanding example of applying academic knowledge to something very practical—the use of fuel in the home. Had the people responsible delayed until they felt confident of meeting with no criticism they would never have started their trials at all. They had shown great courage in getting going. They had also shown great courage in publishing their interim report.

Having said that, he wanted to make the strongest protest against anyone coming to any conclusions on the report of any sort or kind whatever. Two things had to be remembered outstandingly. First of all, the houses were not typical of the millions of existing houses and the standardized usage of the appliances was certainly not typical

of current practices.

He was surprised that there was a danger of the Egerton standard, so-called, becoming what was thought to be typical. He had been a member of the Egerton Committee, and it had tried to make quite clear that the Egerton standard was the maximum reasonable amount of which the installation could be capable. It was equally important that if people wanted to run it at a very much lower standard, they should be able to do so and should be able to save fuel.

Mr. A. Broderick said Mr. Masterman had asked that the lessons of the tests should not be applied to existing houses be ause their standards of insulation were much lower than those of the houses in the tests. But it was, in fact, possible to insulate existing houses up to current standards.

Secondly, he supported Mr. Cleave as to the relation between total heat costs and insulation. They had a concept as to the total heating cost of a building, whether an industrial or a domestic building: the cost of heating plant, of fuel over a good number of years, plus the cost of insulation. By spending more on insulation one oftenin fact, generally-reduced the total heating cost. He gathered that the houses at Abbots Langley had all been insulated to the same standard, but he believed that a year or so previously some information was published about other houses at Garston which were insulated to varying standards. He did not know whether it would be possible for the statisticians to correlate the two lots of tests, but it would be extremely useful if charts similar to the ones shown on the slides could be prepared in relation to the total costs of heating, including the insulation costs.

Mr. H. G. Goddard [F] said he had hoped that a housewife would get up and make some comments. However, he would do so on

her behalf.

The report did refer—though this had not been mentioned in the address—to the amount of labour necessary in attending to all these appliances in the house. It varied enormously from something like three-and-a-half hours a week to less than one hour for the appliances used in whole house heating. This was quite an important point to bear in mind when choosing systems, because some appliances appeared to be very wasteful of the housewife's labour—which, even though it might not be paid by the hour, was nevertheless quite important.

Mr. Richard Eve said that to reply to the discussion would, he feared, almost amount to starting another one. Time would not permit him and his colleague to deal with

all the points one by one.

First of all, he wanted to make one point very clear. The Building Research Station was not advocating any particular system of house heating. It was trying to put the facts before people. If he had picked on one particular group that evening it was largely because he thought its movement was dramatic. They did not take the stand that there was any one particular heating system. Obviously, there must be wide variety.

The criticisms made had all been most helpful, but when it came to the question of air temperature and radiant temperature, he turned the matter over to Dr. Weston for the scientific side. From the purely architectural side, he took the view that the best instrument for measuring human comfort known to human kind was the human being who had to live in the house, and it was to him one must look above all else, and to what he thought of these systems. It was there that he expected to get an

indication of the answers to some of the points raised on the side of high temperature radiant heating.

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In reply to Mr. Kenyon, plans for examining what was called the 'open type' of plan, and thereby carrying the study into the realm of planning, were already well on the way. It was hoped to learn a a great deal from the tenants' usage of the actual houses in which they were now living, and it would be of extreme value to

architects. Mr. Masterman had very kindly given some prior indications of the tenor of his remarks, and he himself really could not cope with all of it at the moment. The Egerton routine was treated as a standard of temperature. It was considered that men like Mr. Masterman probably had more knowledge than they could scrape up, and that they might as well start from that. The question was, To what degree would the inhabitants of the houses deviate from this? One thing he could not accept at all: that the over-all efficiences being greater than the test bench efficiencies is nonsense. In point of fact, that was the very thing he had been trying to bring out earlier. One took the appliances and tested them on the test bench, and the measurements of flue losses were made as soon as they left the appliance; the heat going out at that point was treated as lost. But in a house—particularly a two-storey house—the flue went up through two stories, and for 16 ft. valuable heat was being gained. Dr. Weston would say more about this subject when he addressed the Institute of Fuel, but no architect should go away confused on this matter. The fact was that valuable heat was contained in the flue, and was gained for the house. This was one of the reasons why the unheated or normally unheated bedrooms gained heat. It was not the only reason, and this was where so many people went astray. They judged from their own milieu, which took them into houses of 2,000 sq. ft. and more. The interconnection between the heating in rooms in a small house was, in point of fact, probably more difficult to stop than to encourage. Further, in the experimental houses the doors were only opened to allow the scientific staff to go about their work. That was not typical of what happened in practice. There was, after all, a large amount of movement of heat through a small house.

As to the question of medical work, it might be somewhat difficult to allow the tenants to lead their normal uninterrupted lives if one ran in with thermometers, and so on, to check up on their health. But he could assure his audience that work was being done in regard to the whole question.

The problem of applying the data to existing houses had been raised. It would be very rash to apply it to any existing house without thinking very carefully about it. For example, it would be madness to start dealing with a basement flat in South Kensington on the grounds of the air changes measured on a suburban or semi-rural site at Abbots Langley. That sort of intelligence was supposed to be an adjunct to the architectural profession.

They could be trusted to apply the information reasonably and thoughtfully and, of course, wherever necessary the B.R.S. were only too willing to do their best to help within the limits of the time at their dis-

He felt sure he had slipped over a number of interesting questions, but he thought Dr. Weston should be allowed his

Dr. Weston said Mr. Kell had asked a question of fact. In the figure for district heating load the allowance for hot water was 120 therms.

He hoped he was going to abide by Mr. Eve's faith in him and not go on too long at that stage. There were, however, one or two general points he would like to make. First, one speaker had asked about the correlation of the data obtained in the experimental houses in Bucknall's Close and the houses discussed that evening. If he might say so, that was an extremely perspicacious point. It was engaging the attention of the Station at the moment. The discussion of insulation could not be separated from the discussion of heating systems. The amount of money one saved per annum by insulating a house depended on how much money one spent per annum, and that depended on the heating system. There was therefore no universal answer as to how much money was saved by insulating a house. It depended on what the system consisted of and the temperatures it was run at. An attempt was being made to tackle the problem and to produce comparative data for different methods of heating and different degrees of insulation.

On the use of eupathoscopes and globe temperatures and other indices of comfort, sheer practical circumstances came in. There were twenty houses and something like ten rooms to a house, that was to say, 200 spaces to deal with. To measure only one point in each room would have required the use of 200 eupathoscopes, which would be quite out of the question. Secondly, measurements had to be made in a position which would be used when the houses were occupied, because it was desired to compare the unoccupied period data with the occupied period data, which meant that temperature measurements had to be made not far from a wall. At the position chosen in the various rooms, generally speaking, the air temperature did not differ from the equivalent air globe or other temperature by more than 1 degree, and it was not considered, therefore, that the data was likely to be invalidated by the fact that in this comparison at any ratethough the data were available—the question of radiation had been ignored.

If one agreed to accept a small area round the fire as an inhabited space, of course, other factors came into action. Those factors had not been dealt with yet. It would be possible to deal with them after the tenants had been in occupation for a time. The air temperature would then be known at the same point as during the unoccupied period, as well as how the tenants were using the various appliances. That question, therefore, had to lie until the results of the experiments in the occupied period were available.

One general point: many of the speakers seemed to have erred in making snap decisions. They had decided whole house heating was the way to do the job. He would not argue whether that was so or not. He wished to call attention to the terms of reference of the experiments-'to provide information on which executive decisions might be based.' It was not their business to make snap decisions, and it was well for readers of the paper to give due consideration to all the factors which were not included in it—questions of how much a week people wanted to spend on fuel and how many therms per annum were going into the house. Comparisons on an economic basis were valuable, but they were only part of the story. At the moment the gaps had to be filled in from one's own knowledge. For example, in a certain locality in a soft coal area one did not want to put in anthracite: it had to be imported from South Wales, and so on.

It had been suggested that no decisions should be taken at all. If that was the case, the experiments would have failed, because the purpose of presenting the data was to enable people to make their decisions. In doing so, there were certain provisos which must be borne in mind, which he might summarize.

The data referred to houses of around 950 sq. ft. in area. It referred to the London region. The results represented the London region for current fuel prices and capital costs. It referred to a routine based on the Egerton test work which might or might not be typical of low cost housing of tenants. It had been assumed to be fairly typical. The data so far from the occupied phase indicated that the average expenditure was quite comparable with the average expenditure for the various houses that were observed during the unoccupied period.

They were studying statistics of one: there was one of each type of house. They were uncertain whether, if they built the same twenty houses on another occasion, they would get the same answers. In fact, they knew they would not. There were, too, subtle differences between individual appliances. Wherever there were two appliances of the same type by the same maker, allegedly doing the same job, consumption was not the same, as would be seen from a comparison of the figures. That meant that, in looking at the data, differences between two houses of, say, £1 or £2 could safely be ignored. It was no good arguing about the fine structure of these data but only the broad features. Similarly, differences of 1 degree or so on mean house temperature were without significance. There was already a tendency in discussion to make detailed comparisons between individual rooms. That was nonsense, and the data was not of such a degree of precision as would merit it. Within a degree, and one two pounds, the comparisons were valid. Beyond that one moved into the realms of subjective judgment which one was not aiming to enter.

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Architects and House Agents

A Memorandum by A.R.C.U.K.

THE ARCHITECTS REGISTRATION COUNCIL are concerned to secure the proper observance of Principles VII and VIII of the Code of Conduct: (i) by architects who are employed on salary or retainer by house agents,* and (ii) by architects who themselves are permitted to carry on business as house agents in the special circumstances referred to below.

Principles VII and VIII are as follows: Principle VII. 'An architect must not, while practising his profession carry on or engage in any operation of trade or business inconsistent or out of keeping with the fitting and proper discharge of his professional duties.'

Principle VIII. 'An architect must not assume or consciously accept a position in which his interest is in conflict with his professional duty.'

1. Architects employed by House Agents. It follows from the above Principles that an architect who is paid by a house agent can not give unbiased advice to a prospective purchaser. There is no objection to an architect in his professional capacity advising a house agent on fee or salary, but he should not act as architect for a client of the house agent in connection with a purchase being negotiated by his employer.

Example (ii) of Principle VIII is a parallel case: 'An architect in the salaried employment of a firm of contractors must not accept a professional commission from persons other than his employers in respect of building or other work to be carried out by his employers.'

2. Architects carrying on business as House Agents. Under paragraph 7 of the Code of Conduct, Example (v), an architect must not permit the business of auctioneering or house agency to form part of his business nor may he control a firm or company engaged in auctioneering or house agency.

This provision appears in the original Code of Conduct published in 1936. At that time the Council were informed that there were cases in which architects had been engaged in business as house agents for many years, and it was felt that some regard must be had to the vested interests so acquired. The Council accordingly passed a Resolution in the following terms:

'Where business as an auctioneer or house agent was being carried on at the time of registration no action be taken in the matter, but that any registered architect attempting to, or who has attempted to, start any business as auctioneer or house agent after the

* The term 'house agent' in this memorandum is deemed to include persons engaged in the selling or letting of house or other property as well as auctioneers. It does not include estate surveyors or land agents engaged in the management of large estates on behalf of the owners. The term 'estate agent' which it is customary to apply indiscriminately to both of these classes is for that reason not used in the memorandum. date of his registration, be informed that such action is not in accordance with the recognized custom of the architectural profession."

It should be noted that the concession granted by this resolution was a personal one, and it does not convey the right for a firm, of which the architect is principal or partner, to continue the architectural section of the business on the retirement or decease of the architect member.

Complaints are now being received that some architects who have taken advantage of this concession have not taken steps to keep their architectural practice distinct from their house agency and other work. It is necessary to secure that an architect shall be in a position at all times to give unbiased, impartial advice to his clients, and in the cases referred to the architect must be careful to see that his professional integrity, as an architect, is not in doubt. For example, an architect who is also a house agent must not when carrying out a transaction for a client in his capacity as a house agent, invite the client to appoint him as the architect for advising on the suitability of the building. It is obvious that the temptation to do so will occur. The architect should make it a point of honour that in any transaction where he is engaged as house agent he will decline to act as architect for the purchaser.

The separation of the architectural practice from the commercial business is necessary, in form as well as in fact. The title 'Architects' should not be coupled on office windows or letter paper with the words 'House and Estate Agents' or 'Auctioneers'. If the words 'House Agents' and 'Auctioneers' are shown on the windows of the premises then the architectural practice should only be indicated in an unostentatious manner on the door plate. In the same way separate letter paper should be used for the purpose of the architectural practice, bearing only the word 'Architect'.

While it may not be possible to insist upon the occupation of separate premises the staff employed should, so far as is possible, be distinct.

The Council look forward to the time when it will be possible to prohibit altogether an architect from engaging in commercial work as house agent or auctioneer and they have it in mind that such a prohibition shall be enforced in seven years time, viz. on 1 January 1956. In the meantime an architect who was not carrying on business as a house agent before the date of his registration may not now start in business as a house agent nor may he become a partner in an existing firm of house agents. Further, in view of the fact that registration from now on will be restricted to applicants qualified by examination there can be no further bona fide cases of persons who were carrying on the business of house agency before being registered and accordingly the Resolution of Council referred to above should not apply to any person registered after the Council Meeting in June 1948.

Section 17 of the 1931 Act. It remain to consider the case of firms or companies engaged in house agency or auctioneering who have taken advantage of Section 17 of the Architects Registration Act, 1931, to employ an architectural superintendent and accordingly to carry on business under the title of 'architects' although not registered. Members of the profession would naturally complain at the imposition of conditions which firms not subject to the Code of Conduct were able to disregard by reason of the fact that they are not registered as architects, but under Section 17 are able to use the title. But an architect who is acting as architectural superintendent under Section 17 is bound by the provisions of the Code so long as he remains on the Register. He would appear to be in the same position as an architect who is employed as adviser or consultant by a firm of house agents or auctioneers referred to in (1) above. He will be equally bound by Principle VIII of the Code:

'An architect must not assume or consciously accept a position in which his interest is in conflict with his professional duty.'

He must therefore not act as architect for a purchaser in respect of any transaction being negotiated by his employers, and it may be necessary for the Council to require an architectural superintendent to resign his appointment if his employers require him to act as architect in circumstances prohibited by Principle VIII of the Code.

The Council would then have to consider in due course whether in the event of the architectural superintendent concerned in cases such as those referred to above refusing to comply with their direction to relinquish his appointment they should direct an Enquiry before the Discipline Committee on the ground of conduct disgraceful to him in his capacity as an architect with a view to his removal from the Register.

Finally, there is the question whether it is permissible for an architect to enable a firm now to set up a combined business as architects and house agents or auctioneers, by accepting an appointment as their architectural superintendent, under Section 17. The same principle would appear to apply as in the case of architects who were not acting as house agents at the time of their registration and are not now permitted to do so. Section 17 must not be used to evade the prohibition.

Moreover, if the above proposal is agreed that from I January 1956 an architect shall not be allowed in any circumstances to carry on business as a house agent then equally from the same date no architect should be permitted to continue to act as architectural superintendent to a firm or company carrying on business as house agents so as to enable them to call themselves architects under Section 17.

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By J. A. Wright, M.C.

Architect in Charge, Ancient Monuments Department, Ministry of Works

since the Passing of the Ancient Monuments Act, 1913, the Ancient Monuments Branch of the Ministry of Works has undertaken the preservation of many historical wildings throughout the country. The aim of the Department, it should be stressed, is to preserve and not to restore. As a result of extensive experience in maintaining structures of many periods and built in many kinds of material, some broad principles of preservation have emerged, which may be of general interest.

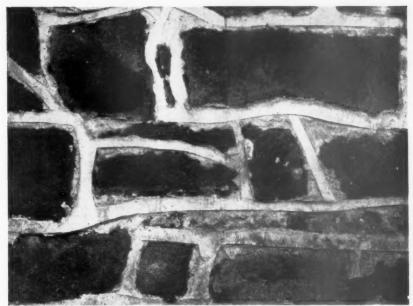
Departures from the rule of preserving rather than restoring are, of course, sometimes necessary. A building may have been allowed to decay to the point at which extensive falls have already occurred and the fragments may still be where they fell; partial rebuilding or pinning-up may be needed to secure portions of the fabric which are likely to collapse, or some protective covering, such as a roof, may be needed. It is rarely necessary to introduce new material, as the fallen debris on the site usually provides all that is wanted. Where roofing is essential, the evidence of the original design is followed.

Few ancient buildings have remained free of comparatively modern additions. Where these are without interest, and obscure the original outline, it is the practice to remove them, and to provide any support that is required in materials harmonizing with the old fabric. A detailed record is kept of the work done for this purpose.

Removal of Plant Growths

Most old buildings have become the home of vegetation in the course of time, and the first operation is to cut down and remove all such vegetation and undergrowth, especially that which is endangering the stability of the fabric. Ivy is the chief offender and can cause serious damage if it is unchecked. The growth of ivy is rapid and persistent; its tendrils will penetrate into the smallest crevices, loosening and dislodging stones, and often forcing apart large sections of masonry, particularly of face work where bonding with the core of the wall is insufficient.

The plant often causes fractures, enlarges those which already exist and will eventually cause the complete disintegration of a wall or structure. The roots and tendrils



Pointing which disfigures the masonry and is superficial, giving no stability to the wall. Portland cement with a fine grain sand has been used, finished with a hard edge and polished surface. It will be seen that some has fallen away and elsewhere it is cracked

feed upon lime mortar, causing it to break up and lose its virtue. As the roots expand, disintegration is accelerated, resulting in further penetration of water and vegetable matter, and so increasing the food supply available to the plant.

If the walls of a building are thickly clad, the ivy should first be clipped back. This will enable a closer examination to be made, so that the extent of any damage to the wall may be ascertained, before cutting large stems. All the ivy should then be cut at a convenient place above the root. If the root is growing in the ground, it should be grubbed up at once, but if it springs from the wall, it should be killed by pouring a corrosive acid into holes bored into the stump. When the ivy growth is withered, its removal will be effected more easily, but care must be taken to avoid dislodging loose masonry. By cutting the withered stems for a rectangular or circular area about 20 ft. across and tying rope to the centre, the ivy may usually be pulled off in one operation.

Trees and all forms of undergrowth in masonry are also responsible for much damage. Elder, sycamore and ash, in particular, have large root spreads, and penetrate long distances into the masonry. Saplings and small shrubs can usually be removed without disturbing much masonry. Larger trees should be cut off as near the roots as possible and the stump killed; the decayed roots can be removed more easily after this has been done. It is essential that all decayed roots and vegetable matter should be completely removed if further damage is to be prevented.

Repairs and Consolidation of Masonry

As a general rule, masonry in a good state of preservation is left untouched and no

defective masonry that can possibly be secured in situ is taken down. If it is necessary to introduce new material on the surface, to support dangerous or overhanging portions of the structure, for example, it is made similar in all respects to the existing fabric, whether face work or broken core.

Displaced masonry, such as face work which has bulged, should be taken down and the stones embedded in their original position. The stones must be numbered or otherwise identified. Stone dressings to openings and the like, which have been displaced by vegetation or other causes, should be treated in a similar way.

Walls which have a pronounced 'bow' can be strengthened by the insertion of reinforced concrete beams. A trench is formed in the wall head to receive a beam, which is afterwards covered in and concealed with core work. In the case of high walls, additional beams may be inserted at a lower level by withdrawing the face work, cutting the recesses for the beam in short lengths and replacing the face stones when the concrete is set. Provision should be made for connection of the reinforcement uniting each section.

Cramps or ties should be of non-corrosive metal, such as 'Delta' metal, and in no circumstances should iron or steel be used, except as a reinforcement for concrete.

Where a structure is in danger of settlement, under-pinning is usually done in reinforced concrete and in short sections. If a wall leans from the perpendicular to such an extent that lateral support is required, vertical reinforcement is used in preference to external buttressing, but this should be carried out in conjunction with the underpinning. The insertion of vertical reinforcement is done in a similar manner to horizontal reinforcement, but in longer lengths.

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Wall Tops

The treatment of wall tops is normally the first operation in dealing with a building. It is very necessary to make a wall top waterproof, to prevent penetration of moisture into the heart of the walling. Usually the upper courses of stone work are found to be loose and the mortar disintegrating. These courses should be lifted, cleaned, removing all roots and soil, and then rebedded, care being taken to finish the joints between stones so that water does not stand on the wall top. Where the wall top presents an uneven skyline, this irregularity should be preserved, but pockets which hold water must be avoided.

It is sometimes advisable to provide small cesspools at the lowest points of the wall top. A rainwater pipe of, say, 2 ins. in diameter, preferably of lead, can then be bedded in the heart of the wall. This may be done by withdrawing the face stones and putting the pipe in position and replacing the face work. Provision may be made for cleaning out the pipe, both at the top and at the foot, and galvanised wire guards should be provided to prevent choking with leaves or similar materials.

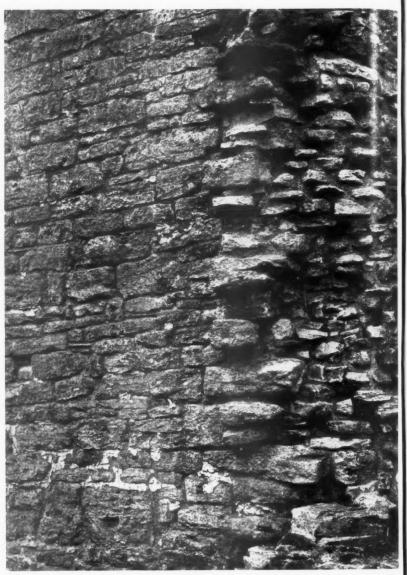
Rough Racking

Rough racking is the general treatment of exposed core surfaces, such as broken wall faces, ends, and wall tops. The term is also applied to the introduction of rubble masonry to support or strengthen overhanging masses which would otherwise collapse and to corbelling out to retain lintels, arch springers, or other members, and to filling up pockets in broken wall heads, or offsets which would hold water.

The aim should be to reproduce the appearance of the existing core, and, at the same time to avoid the new work being obtrusive. Rough racking calls for considerable skill and patience on the part of the mason. Unless he has a natural gift for this type of work it is only after much practice and experience that he will acquire the technique necessary for satisfactory results.

If the core work forms part of any original openings, such as doorways, or arrow slits, the necessary allowance must be made for the face work of these openings, keeping the core back sufficiently to allow for the space which the facing material originally occupied.

When dealing with narrow walls where the facing material is missing, it may be found necessary to bring the new core work out almost to the wall face to obtain sufficient strength and to give the necessary support for any overhanging masonry. In such cases, the impression of the backs of the missing face stones should be formed in the core work. This can be done by building up the face stones and withdrawing them before the mortar takes its final set. The core and facing of an old building frequently consist of flints, water-worn stones, rubble or brickwork. Here again, it is desirable to build out temporarily to the original wall face, in character with the existing structure, and subsequently to



Masonry after repair, coursed rubble on the left and corework 'rough racked' (with toothing of a return wall) on the right. The wall face was originally plastered with lime mortar. The fragments which can be seen adhering were not disturbed. The pointing of the rubble facework is slightly recessed making a snug joint, showing to advantage the character of the masonry

remove the facing material before the mortar finally sets, so that the desired finish to the new work is obtained.

Rubble core work very often contains poor weathering material, such as chalk. Experience has shown that this material if retained and exposed to the action of the weather will probably disintegrate in a few seasons, under hard conditions. Therefore it is desirable, when consolidating core work of this kind, to take out all chalk or soft stone of poor quality, and to replace it with stone rubble of a more durable nature.

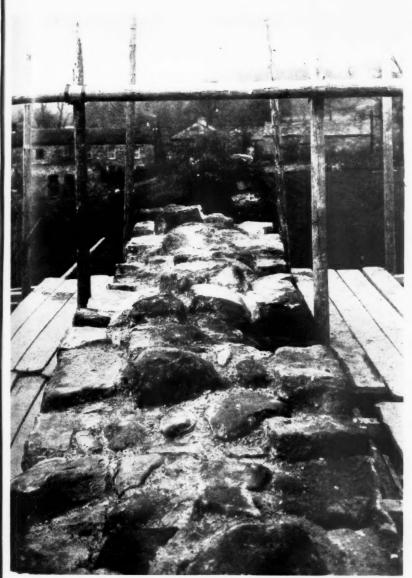
Where the core work is found to be in fair condition, it is necessary only to rake

out the joints and to refill them with mortar. Where the masonry is in a loose condition, the stones must be removed and rebedded as nearly as possible in their original positions.

The character of existing work in the building, which is being dealt with, naturally, must be given careful study, 50 that it may be successfully reproduced.

Fractures and Voids

Minor fractures are filled with liquid cement, but those of a more serious nature must be dealt with by bonding the sections of masonry together, or by such other measures as the circumstances demand. In



Treatment of wall top. Vegetation, soil and decayed mortar has been removed, stones_rebedded and pointing 'weathered' to throw water to each side of the wall

thin walls this can be achieved by inserting 'bonders' across the fracture at intervals in the face work. With thick walls, dove-tailed reinforced concrete 'bonders' are inserted in the body of the wall, the spacing of 'bonders' is governed by the thickness, height, and other conditions affecting the stability of the wall.

The external appearance of the wall will give some indication of its general condition but if there is any doubt it can be tested by sounding with a hammer. If, on tapping the wall face, a dull or hollow sound is obtained it is almost certain that voids exist. Where the wall is solid, a ringing sound is produced. As testing proceeds, all

hollow sounding areas should be marked for treatment.

If the wall is found to be in a precarious state, with large voids or if it is honeycombed and merely a mass of loose rubble, a decision must be reached whether or not to withdraw the face work, remove loose core and reconstruct with solid masonry, rather than treat with liquid cement. If liquid cement is used, the work must, in any case, be carried out with extreme caution, otherwise there will be the possibility of a collapse while the work of cleaning and washing out is in progress. Small voids are normally treated by filling with liquid cement.

Grouting

The use of liquid cement for grouting avoids, under normal conditions, the necessity of dismantling and rebuilding defective masonry. It can be done either by hand or with a machine but with both methods great care must be exercised.

Hand grouting is employed for small fractures and voids. The liquid cement is poured in from a can through an aperture in the wall face. The area to be grouted should be divided into convenient sections to ensure that all cavities are completely filled. Where voids are being dealt with, the grouting hole should be level with the top of the void, to prevent the formation of air

pockets.

Grouting by machine is carried out on the gravity principle. Whether grouting is done by hand or machine, it is absolutely essential that the area to be dealt with should be first thoroughly washed out with water, to make certain that all dust and dirt are completely removed and that the surrounding masonry is well moistened to receive the liquid cement and ensure adhesion. Cement will not adhere to dusty or dry surfaces, and if the grout is injected into a wall which has not been cleaned and washed out, it merely sets into an inde-pendent mass and fails to perform its function. A plentiful supply of water is therefore essential for this work, preferably from a main with hosepipe extension to the scene of operations. The necessity for washing out before grouting cannot be over emphasized.

Gravity Grouting

In the early days of the Department's work on Ancient Monuments, machine grouting was carried out under pressure, and the necessity for cleaning the affected area before grouting commenced was not fully appreciated. As a result, the liquid cement did not always penetrate into all the voids and crevices, and being under pressure, it tended to blow or force out the face work at the weakest points. On one or two occasions serious accidents were only narrowly avoided, and the method was soon abandoned as being unsatisfactory and even dangerous. The injection of liquid cement by gravity was employed instead, and after several tests, it was found to be highly satisfactory, and for many years has been the normal practice.

When it has been decided that grouting is necessary, a careful survey of the wall should be made to determine the full extent of the defect. Where doubt exists as to the condition of the interior of the wall, it should be tested by sounding with a hammer, as already described.

Small holes should be drilled where it is thought that voids exist. The holes should be about 4 ft. apart horizontally and 2 ft. apart vertically, preferably at wide joints, where vertical and horizontal joints meet. They should be 'staggered', that is, they should be spaced alternately with those immediately above and below. It is usual to start grouting at the base of the wall and to work upwards in horizontal sections of about 4 ft. in height.

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As the holes are drilled, the cavities should be washed out thoroughly with clean water, pouring it in at the top and continuing the washing until the water runs clear at the bottom. It is often necessary to assist the clearance of old decayed mortar by using a long, thin steel probe with a bent end.

During the washing process a note should be taken of joints or stones through which the water runs out. Before grouting is commenced, these joints must be caulked very tightly with tow or clay, pressed into the joint with a steel tool for a depth of 1½ ins. or 2 ins. The holes through which the water runs out freely and where large cavities are found, should be marked so that adequate preparations may be made for filling the cavity when grouting is being done.

During the process of washing out it may be found that there are a number of deep open joints in the masonry through which no water escapes and behind which there is no void. These should be filled with mortar.

Grouting Apparatus

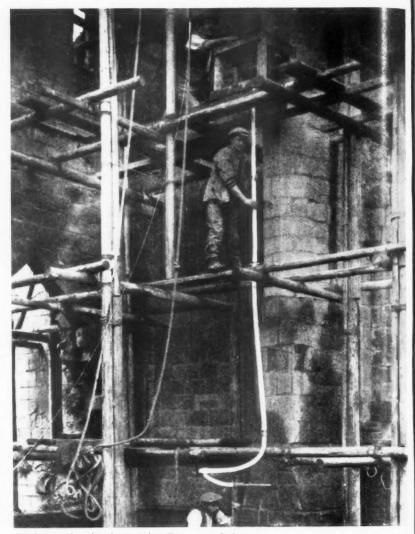
The grouting apparatus used by the Department for filling large voids consists simply of one, or preferably two, open galvanized iron pans similar in shape and size to the domestic washing copper. There is an outlet in the bottom of the pan to which is attached a union with a $1\frac{1}{2}$ in. diameter rubber hose, terminating in a galvanized iron nozzle $\frac{3}{4}$ in. diameter fitted with a stop-cock.

The hole in the bottom of the pan is closed by a wooden plug about 18 ins. long. A plunger formed on a wooden handle with an indiarubber cup, such as the familiar plumber's force cup, is a useful accessory. This cup, when placed over the hole in the bottom of the pan and pressed down, gives an additional impetus to the flow of grout, if there should be a stoppage or air lock in the tube. For filling small cavities a watering can or some other similar container for the grout will be the most convenient.

To mix the grout, the pan should be filled with water to within about 3 ins. of the top. The cement is emptied into the water and stirred continuously until the required consistency is obtained. A useful proportion is $1\frac{1}{2}$ parts of water to 1 part of cement. Thorough mixing is essential and should be continued until the whole of the cement is in suspension and no solids remain in the bottom of the pan.

To economize, it is sometimes possible to use sand with cement in the proportion of $\frac{1}{2}$ cement, $\frac{1}{2}$ sand, to $1\frac{1}{2}$ parts water, but it is important that the sand should be fine grained and of the same specific gravity as the cement.

Before grouting is commenced, it is necessary to be certain that all cavities have been thoroughly washed out, that all open joints have been plugged with tow or clay in the case of small holes, and that a supply of clean water is available to wash off any cement which may run out of the joints. When grouting is done by machine, the nozzle of the delivery tube must be inserted



Gravity grouting plant in operation. Treatment of a buttress

in the lowest hole and well caulked with tow.

During the grouting, one man must be stationed at the nozzle to open and close the stop-cock. Two men are stationed on the scaffold, one regulating the flow of grout into the delivery tube and the other preparing and mixing the second grout pan. If large voids are to be filled, ample supplies of cement and of clean water must be available on the scaffold, so that grouting can proceed without interruption.

When the cavity is ready to be filled, and the cement in the pan is mixed, the wooden plug is raised and the grout flows down the tube. The man controlling the nozzle opens the stop-cock and thus lets the grout flow into the cavity. The number of pans of grout required will, of course, depend upon the size of the void, but, generally speaking, the operation should continue without removing the nozzle until the grout rises up the wall and begins to flow out of the holes

at the top of the section of wall under treatment.

If the grout does not flow freely and is meeting some obstruction, assistance can be given by placing the rubber force cup over the hole in the bottom of the pan and pumping vigorously.

Pointing

The pointing of joints in masonry should match, as far as possible, the texture, colour, and general appearance of the old work. Disfiguring modern pointing is removed. Cement pointing is detrimental, particularly if it is applied to soft stone or bricks. It is hard, non-resilient, comparatively non-absorbent, and therefore does not respond to the variations in the atmosphere to the same extent as the stone or brickwork with which it is in contact. If hard pointing is employed, physical action causes rapid weathering, and disintegration of the soft stone or brickwork. Many cases of stone

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decay have been directly attributable to the pointing of a porous stone with impervious mortar. Where this is done, both saturation and evaporation are confined to the stone, whereas the process should be evenly disributed over the stone and pointing.

Medieval pointing was usually struck off flush with the face of the masonry. In the course of time the mortar weathers back and the edges of the stone or brick become rounded off. In order then to obtain a 'snug' joint, the surface of the new pointing should he slightly recessed, so that the mortar does not spread over the rounded edge of the stone. If the joint is filled to the surface of the stone-work, a thin skin of mortar is pread over the edges of the adjacent stone. This skin has no hold on the surface and, in the course of time, will flake off. If the stone or brick is of a soft nature, and weathers easily, a pocket is formed behind the skin of mortar, which is readily enlarged by wind erosion. It also holds moisture, which hastens further decay of the stone-work.

The sand used for mortar should be of a kind similar to that employed in the old walls, but avoid the use of fine-grained or dirty sands. Sand should be clean, sharp, and as coarse-grained as is permissible to match the original work. The lime should be blue lias, or some other good hydraulic lime, from a reliable maker, ground and delivered in bags. If it is found that the lias lime available is uncertain in its setting properties, a hydrated lime can

Lime mortar should be prepared by mixing the lime and sand in the proportion of two parts of lime to five parts of sand in a dry state on a boarded platform. The mixture is allowed to stand until the lime is cool and then worked up with a shovel, using the minimum quantity of water. Joints should be raked out in order to remove all dirty and loose mortar. They should then be thoroughly washed with clean water, by means of a hose or garden syringe. It is essential, especially in dry weather, that masonry and brickwork should be well wetted before pointing is carried out. The joints should be thoroughly filled with mortar and consolidated by pressing in with the appropriate tools. There should be no voids and the mortar must adhere firmly to each side of the joint. Superficial pointing has no durability, and must be avoided.

New pointing should harmonize in colour and texture with the old work. After the joints have been filled and compacted, a slightly roughened effect can be produced, either by the use of a jet of water or a garden syringe, or by stippling with a bristle brush. The first method must be employed with care, since a strong jet has a tendency to scour the mortar. The second method is preferable; it helps to tighten the joint and leaves a roughened or 'weathered' surface.

New pointing must be kept damp during not weather. Pointing should be avoided during frosty weather, but if it is necessary to do it when frost is likely, the work must be thoroughly protected. It is sometimes unnecessary to point every open joint in a

GALVANIZED FURNACE PAN CEMENT MADE LEVEL-WITH TOP OF WASTE EXTENSION PIECE WHERE NECESSARY 1/2 STUB NIPPLE -I RUBBER HOSE PIPE -FLANGED COUPLING-11/2" GALVANIZED TUBE FLANGED -AT TOP END SPECIAL BRASS COUPLING-SCREW. 3/4 GALVANIZED TUBE FEMALE INLET SCREWED ONE END 3/4" THROUGH-WAY OUTLET GAS-COCK WORM DRIVE CLIP 13/4 x 3/4 REDUCING SOCKET WOODEN PLUG 11/2" STUB THIPPLE 6'-0" LENGTH OF 11/2" 3 PLY RUBBER FITTED WITH EBONITE PLUG SPECIAL BRASS HOSE-PIPE COUPLING-SCREW FEMALE OUTLET-HOSE UNION INLET BRASS HOSE WORM DRIVE CLIPS CONNECTORS FORCE CUP GRAVITY GROUTER

wall. Very often the mortar may have weathered back from the surface of a stone, but still be sound and hard in the joint, and, unless the mortar is recessed more than ½ in. in depth, there is usually no need to fill

such joints.

In order to ensure waterproofing of the wall top, the mortar used for rebedding and pointing the surface stones should be of lime gauged with cement in the proportion of one part Portland cement to four or five parts of lime. Alternatively, if the stone is of a hard texture, cement mortar may be used, the mixture being in the proportion of one part cement to four parts of sand. Use cement for this, as well as for grouting, conforming with B.S.12, 1940.

Excavation and Laying Out of the Site

Many monuments have stood in a neglected and ruined state for so long that the original ground or floor levels have become covered, sometimes many feet deep, with fallen debris and accumulated soil. The removal of the accumulation is a necessary part of the work. Not only is the site restored to its original levels, but buried walls and foundations are frequently exposed, revealing perhaps the complete layout of the buildings.

Where walls have been destroyed but foundations or other remains indicate their former existence, their lines are marked on the surface with stones or other suitable material. Where more than one period of work is involved, each period is marked in an identifiable manner. If remains of the original paving exist, they are always carefully preserved. When the work of consolidation has been completed, and all debris and surplus soil removed, the site is turfed or sown with grass seed at the original

Remains of original paving such as stone flags or tiles are frequently found. These are carefully preserved and re-laid to the original levels. Tile paving is best re-laid on a concrete bed to prevent moisture rising from the ground and water accumulating on the surface. This also has the effect of checking vegetation.

Subsequently it is necessary to protect tile paving from frost either by covering with bracken or straw during the winter months, or if the remains are of special significance, by roofing the area concerned.

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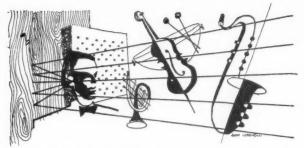
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Concert Hall Acoustics

Part II

Concluded from pages 70-76 of the December 1948 JOURNAL

Mr. H. R. Humphreys said that in considering the best shape for a concert hall it was interesting to examine the relative importance of the boundary surfaces as reflectors. Assuming that the sound proceeded outwards with approximately the same energy in all directions over the angles enclosed by a modern type of hall, such as Liverpool Philharmonic, we found that the proportions of the total outgoing sound falling on the various surfaces could be assessed roughly by the total solid angles subtended by these surfaces at a point about the centre of the orchestra.

The largest amount (almost half) fell on the smallest area, namely the floor which was comprised almost solely by the orchestra platform, and perhaps Mr. Bagenal's 'little lake' in front of the audience. The next largest part of the energy (about a quarter) fell on the ceiling, including that over the orchestra. The energy share of the ceiling was further increased by once reflected sound off the floor. The walls received only about threesixteenths of the total energy, and at least a half of this area was that backing and flanking the platform, where special measures for reflection would generally be provided. The remainder of the walls, i.e. those surrounding the audience, were thus relatively unimportant as first reflectors, and the ceiling was of very great importance.

Mr. Geoffrey Sharpe said that much which had been said had struck him as being academic rather than practical, and $\mathfrak a$ concert hall must be $\mathfrak a$ thoroughly practical affair.

Who was to decide exactly what an audience wanted? And supposing we knew, then should it be given what it wanted, or what the scientist believed it ought to have? Mr. Bagenal had asked whether musicians preferred to sacrifice clear definition or fullness of tone. Under present conditions in England when no native orchestra achieved proper definition and all our orchestras were in any case too small, there was no object in trying to put across definition which was not there, while everything possible should be done to fatten up the meagre body of tone produced by too few players.

Mr. J. Moir said there appeared be a fair measure of subjective agreement as to which halls were good and which were bad, but our instrumental techniques required further development before they would display the same degree of objective agreement. He thought the factor of major importance in forming a good impression was that which Mr. Bagenal termed 'good definition', that quality which made an orchestral crescendo a crystal clear combination of instruments from which the individual instruments could be segregated without difficulty. When definition was poor a crescendo was merely a loud noise with a performance very similar to a radio receiver.

This target was not achieved in a hall in which the reverberation time was either very short or very long, but he suspected that the range of reverberation time over which good performance was achieved was much greater than the text books would lead the reader to believe. There were at least four factors which appeared to be definitely disadvantageous, namely, barrel ceilings, concave rear walls, the presence of a proscenium arch between performer and audience, and concentration of the major portion of the absorbent on one surface, generally the floor.

Two factors appeared to be advantageous: (1) diffusing surfaces, of which the currently favoured type appeared to be the polycylindrical diffuser; (2) the practice of distributing the absorbent treatment in relatively small patches over the whole surface area.

Regarding diffusing surfaces, the polycylindrical diffuser was probably serving exactly the same purpose as the plaster ornaments and bowed box fronts of earlier days, and was necessary because of the current tendency to favour smooth wall surfaces. Mr. Bagenal's stepped returns served a similar purpose and had been used in a fairly large number of cinemas built before the war. Experience appeared to suggest that the steps should not exceed a few feet if other troubles were to be avoided.

Turning to the instrumental approach, pulse techniques appeared to be firmly established as the most illuminating method, but we were still unable to extract all the information that the pulse pictures presumably contain. Mr. Moir showed a typical series of pulse pictures (Fig. 4) recently taken in an auditorium having a fair reputation, from which it could be seen that there were large differences over the 100 to 3,000 cycle range. Quantitative interpretation of the results was not yet possible, but much work was being done on this point. Basically, it appeared reasonable to assume that a

strong direct signal with all later reflections at a low level should lead to good 'definition', and there was some experimental verification for this viewpoint. Further work was required to assess the relative importance of the various factors involved. Some measurements of reverberation time seemed to indicate that a pure exponential decay led to a rather hard tone, and that this was appreciably softened by low frequency modulations on the decay curve.

Structural resonances played an important part in determining room performance in the lower frequency ranges, and while a lot of work had been done on this point there was a lot to be learned and it appeared likely to remain a point on which the architect and engineer would have to lean heavily on past experience. And finally a basic point: Was our preference for a particular acoustic environment the result of experience, or a basic preference in much the same way as that which existed for frequency ratios expressible as small whole numbers? If it was the result of experience our preference might be changing due to change in architectural style and to the vast increase in the listening-at-home experience.

Mr. Boyd Neel said that apart from any question of acoustics, the last thing any designer seemed to consider was the comfort of the performing artists themselves. This might seem an unimportant point to the acoustic expert, but if the public knew how many poor performances it had suffered entirely because the artist had been reduced to a state of musical impotence due to 'behind the scene' discomfort, there would be an outcry for improvement at once.

In the average 'concert' hall, one usually found heavy thick draperies hung all round the performing area, with, in nine cases out of ten, a proscenium arch to add the finishing touches of securing non-audibility of the music performed. If there was time, he himself demanded complete removal of all the draperies, usually to the amazement of the hall staff. After half an hour's battle some slight resonance was sometimes obtained, and the concert took place in front of bare walls.

Mr. T. Somerville said he had questioned a number of musicians on the merits of the concert halls they knew, and obtained the following results: Liverpool Philharmonic Hall: very good 2, good 5, fair 4; St. Andrew's, Glasgow: very good 5, good 3; Usher Hall, Edinburgh: good 6.

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Fig. 4: Typical series of pulse pictures, produced by Mr. J. Moir, recently taken in an auditorium, from which the large difference over the 100 to 3,000 cycle range can be seen

He had not obtained as many comments as Mr. Parkin, but he had questioned each individual carefully and found that reactions to the same questions varied very much between them, so that great care was necessary in interpreting the answers. He had formed the opinion that the people who favoured the Liverpool Philharmonic Hall were those musicians who were primarily interested in detail, whereas those musicians who liked good tonal quality preferred the St. Andrew's Hall.

Mr. Bagenal had mentioned the difficulty in modern music due to heavy percussion and brass, and had expressed the opinion that in a loud work the direct sound was most important and should drown out the reaction of the hall. He did not agree with this, for the difficulty never arose under good acoustical conditions, when the sound, even in heavy passages, was much improved by good acoustics.

was much improved by good acoustics.

Mr. Somerville described some experiments recently carried out by the B.B.C. to find the properties of studios and concert halls. He proposed to confine his remarks to an examination carried out in the Liverpool Philharmonic Hall and in St. Andrew's Grand Hall, Glasgow.

The first was a modern hall with a fanshaped plan. The definition was good and conditions uniform throughout the hall, but the impression obtained was that the orchestra had to work hard. In the 100 c/s region the effects of an undamped resonance could be heard. This effect he called 'colouration'.

Mr. Somerville showed reverberation curves of Liverpool Philharmonic Hall (Fig. 5): (a) measured with hall empty, (b) theoretical hall empty, (c) estimated hall full. The difference between the theoretical and measured curves was caused by the fact that there was no reliable method of calculating the absorption of resonant structures such as panelling. The dip at 110 c/s corresponding to the undamped resonance should be noted.

The hall was rather dead and curve (c) lay below the value of 1.85 seconds, given by Messrs. Bagenal and Wood in Planning for Good Acoustics, for a volume of 480,000 cu. ft. A very good feature of this hall was the fact that due to the heavily upholstered seating there was not much change in reverberation whether the hall was full or empty. Mr. Somerville showed the meeting a photograph of this hall taken from the stage end, showing a large panel behind the stage, intended to reflect sound. He also pointed out that the walls were tapered to reflect sound forward. There were no seats under the balcony, so that there was no screening of the audience from reflected sound. The wall behind the balcony was made absorbent by means of rockwool to overcome the difficulty, mentioned by Mr. Bagenal, that in this type of hall when the sound had reached the back wall it had to be absorbed to prevent slapback. At any point in the hall only a few reflections were observed from the walls.

The interesting point about the internal structure was that it resonated at 110 c/s. The sections were of uniform width, and constructed on flat-iron members uniformly spaced, covered with expanded metal and hard plaster. The frequency of vibration of all the sections was in the region of 110 c/s (two octaves below middle A, which was one of the notes which could be played by the tympani).

Fig. 6 showed how the sound decayed at 110 c/s. It would be observed that there are two slopes in this curve, the steeper part indicating the behaviour of the hall itself, and the second portion of the curve of lower slope being due to the resonant structure.

Similar investigations were carried out in St. Andrew's Grand Hall, Glasgow. This also had a good reputation, and was a hall of the Leipzig type with all the ornamentation which was popular at the time it was built. Definition was excellent, it possessed 'singing tone', and the tonal quality was brilliant. Artists found it very responsive and easy to play in, and any position in the hall gave good listening conditions. Great dynamic range was possible in crescendoes, and it was interesting to note that even in a tutti a single harp could still be heard.

Fig. 7 gave reverberation curves of St. Andrew's Hall: (a) measured hall empty; (b) theoretical hall empty; (c) estimated hall full. Curve (c) agreed well with the figure given by Bagenal and Wood for a volume of 600,000 cu. ft.—2.0 seconds.

Mr. Somerville then showed a photograph of St. Andrew's Hall showing the platform end. There were no reflecting surfaces of importance close to the orchestra, which was of great interest in view of the common belief that such surfaces were necessary for good results. Contact microphone measurements showed that the resonance frequencies of the wood and lath and plaster panelling were well distributed over the low frequency region, giving bass absorption free from colouration.

Illustrations were also shown by Mr. Somerville to give a comparison of tone tests in these halls. The pictures were taken with sound picked up by an omnidirectional microphone, and show the trace obtained on a cathode ray tube. There were two kinds of photograph; the first showed a tone which was switched on long enough for the hall to reach the steady state before the tone was interrupted, and the important thing to observe was the way in which the sound died away. It would be seen that in the Philharmonic Hall the decay was ragged, while St. Andrew's Hall gave more uniform results. The second type of picture was obtained by producing a very short pulse of tone in the hall, and the echoes could be clearly observed. Here again the Philharmonic Hall gave more jagged results than St. Andrew's Hall, in which little groups of echoes of low intensity were

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observed. In the latter, sound was reinforced by many groups of reflections well spread in time, and the result was a smooth and brilliant tone. It was noticed that a change of pitch often occurred in Liverpool Philharmonic Hall as the sound died away, but this effect was not observed in St. Andrew's Hall.

Although the Liverpool Philharmonic Hall was good, it did not fulfil all the requirements laid down by Mr. Bagenal: it was marred by bass colouration, due to plaster on expanded metal, a construction which should be avoided in any new hall. It did not 'sing', the tonal quality was hard, and crescendoes lacked brilliance. On the other hand, St. Andrew's Hall fulfilled all the requirements, although no attempts to reflect sound had been made. So far as he knew all the best concert halls and studios were rectangular, and had coffering and rectangular pillars. It would, therefore, appear that non-parallel walls, polycylindrical surfaces, band shells and other devices were not essential. It might be that comparable results could be obtained from fan-shaped halls, provided that the wall surfaces were broken up by irregularities, but the best acoustical conditions might not be possible when the sound was made to progress up the hall from the platform. Mr. Bagenal's suggestion of a modern version of the Leipzig type would probably be the safest design to adopt.

Mr. Karl Rankl said that to aim at a hall with a bigger seating capacity than about 2,000 to 2,500 would, in his opinion, be courting failure for the following reasons:

(a) The piano tone of an oboe, violin, or human voice could only travel a certain distance. Beyond that distance the tone was either so small that it meant a distortion, or it was almost inaudible. The same applied to forte and fortissimo. If a hall was too big the brass fortissimo would always drown the strings and wood wind, which again meant complete distortion.

(b) If the hall was too big there could not be any real contact between the audience and the performer, which in his opinion was disastrous.

(c) Regarding the argument that a smaller hall was economically not workable, he wished only to ask the question 'for whom?' Certainly from a musician's point of view, if there were a demand for an audience of 10,000 people attending the same concert it would be only an advantage to repeat the concert four or five times. This meant that one could have many more rehearsals, and the listener would receive more value for his money in the form of better rehearsed performances. It would also mean that, if there really was such a demand, full employment for at least two or even three orchestras would be guaranteed.

The hall must be considered for nothing else but music, and, he added, for 'live' performances only. Obviously the B.B.C. would be interested in relays from this hall. In his opinion the problems the B.B.C. had to resolve in order to make broadcasting satisfactory should not be allowed to affect the architect's design.

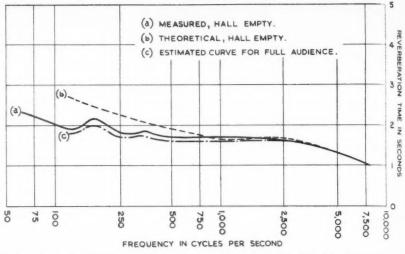


Fig. 5: Liverpool Philharmonic Hall. Produced by Mr. T. Somerville, Reverberation curves

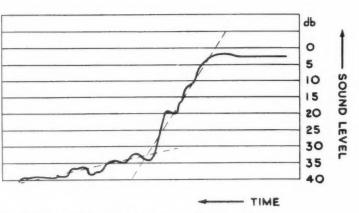


Fig. 6: Liverpool Philharmonic Hall. Decay of sound at 110 c/s.

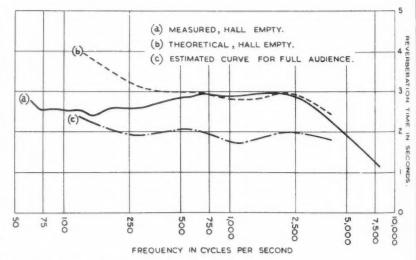


Fig. 7: St. Andrew's Hall, Glasgow. Reverberation curves

Mr. Frank Howes remarked that the number of factors which had to be brought together was very large. He thought that one important aspect which had not been adequately reviewed in the discussion was psychology, but he welcomed the successful effort in bringing together the remainder.

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The idea of the 'pudding bowl' concert hall filled him with apprehension. There was a major psychological element of 'address' to be borne in mind, and the necessary *rapport* between artist and audience would in his view be impossible in such a hall.

Mr. Henry Willis said that as an organ builder he had to contend with all types of buildings, including cathedrals and churches, the acoustics of which were sometimes excellent, often fair, but not infrequently indifferent, as well as all-purpose halls, which from every acoustical angle could be described as really bad.

For concert music he advocated the general conception of the Greek theatre, fan-shaped, with performers ramped on a little hill', a large reflecting surface between the performers and the front of the audience, the seating for the latter being ramped so that a direct path existed between every member of the audience and the place of musical propagation—the whole capped by a suitable ceiling.

Having secured the direct path—the next care was to ensure the correct surroundings for the instruments at platform end. This should consist of one great parabolic reflector, lined with hard cement with a glossy finish ensuring maximum tonal reflection. For the body of the hall the lower part of the side walls would be treated in wood panels, highly polished, to obtain both resonance and reflection.

Regarding the position for the organ—if the ideal result was to be obtained, the instrument must not be placed in chambers, behind grilles, and so forth, but in and at the back of the giant parabolic reflector from which the music was to emanate. The base of the organ, which would occupy the whole width of the apse, by suitable corbelling out in woodpanelling, to form a reflector for the orchestra below and in front.

Mr. H. L. Kirke said it is over forty years since Sabine's work established the basic criteria for the acoustics of concert halls. It is remarkable that today we know so little more, and that there can still be so much argument on the subject. There are several reasons for this. Among them are, but not in order of importance, the high cost of building a concert hall, with the resultant difficulty of the high cost of carrying out major experimental work, particularly on the shape of auditoria; the lack of education and experience in acoustics, particularly amongst architects; the tendency to draw conclusions from insufficient evidence; the subjective nature of the problem, with the result that there is much disagreement as to the results

Mr. Bagenal's paper presented an excellent summary of many of the problems, but that paper and the other contributions, while of considerable value, have not presented evidence which could lead immediately to the design of an entirely satisfactory concert hall. It may be useful, therefore, to enumerate and discuss further some of the desirable and undesirable features of a concert hall, and in which particulars evidence is lacking. Some of the desirable and undesirable features are as follows:

1. Singing tone.

2. Clarity or definition.

3. Adequate loudness in all seats.

4. Acoustic and physical comfort of the players.

5. Echo or slapback.

The accommodation of a large audience.
 The suitability for different types of music, including choral works.

8. The placement of the organ.

9. Avoidance of 'resonant' reverberation. It is easy to recognize but difficult to define singing tone. As far as I am aware no physical definition of singing tone has been made, and the question may well be asked: has anyone, or can anyone, produce singing tone by design rather than by accident? How does singing tone differ from reverberation, or, put in another way, what qualities are required in reverberation in

order to produce singing tone? To be satis-

factory it should be produced without loss

It would appear from what has been said that the direct ray of the sound must be adequate, and for this an unobstructed path is desirable. The singing tone can only be imparted to the direct ray by reflections. The question is: what form should these reflections take? One of the criteria would appear to be that on the cessation of a sound the die-away should be smooth. If this is indeed a requirement, how can it be achieved? It has been suggested that as a modification to the fan-shaped type of hall the walls should be stepped in order to provide parallel surfaces for wall-to-wall reverberation. If wall-to-wall reverberation does take place in this way, then the difference in time of arrival between the various reflected rays, at any rate for the first few reflections, will surely be considerable, and I should have thought that this would give rise to an undesirable quality. It is quite likely that this method produces a reasonable result; by the time that a sufficient number of random reflections have occurred the decay or die-away is smooth, but this part of the reverberation is low in amplitude, and would not therefore be a major contribution to the sound, but rather in the form of background.

With the stepped type of wall, and in fact in any parallel wall arrangement without appreciable 'breaking up', there may well be a tendency for air resonances to be set up which can 'colour' sound. Mr. Somerville has shown that in a number of cases there is an audible change of pitch during the die-away period, due, presumably, to some form of resonance. For good results and true singing tone the pitch

should not change.

Loudness cannot be separated from definition, for it is possible to create a loud noise if we do not mind confusion. Can loudness be increased by short-time reflections without decreasing definition? I believe it can, and the suggestion for a polished reflecting floor in front of the orchestra seems a good one in this respect.

The proposal for a circular form of auditorium requires some comment in connection with loudness, as does any proposal to increase the seating capacity. If an orchestra produces a certain amount of sound energy, then if this energy is distributed over more people, the energy per person will surely be less.

In the fan-shaped type of auditorium there is a tendency for all the energy to be reflected away from the orchestra.

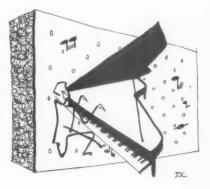
A lot has been said about slapback, or echo, which is most undesirable. In one recently built concert hall in Europe employing the fan shape the curved rear walls had to be deadened with rockwool, and the result was too little reverberation. It should be possible to shape the back walls in such a way that any reflection is towards the audience and not back to the orchestra, directly or by reflection.

Very little has been said about the undesirable quality which can be obtained by resonant reverberation. The word 'resonant' is used in its electrical sense, meaning that panels or other surfaces vibrate strongly at certain frequencies; energy is built up in these vibrations and re-radiated at the natural frequency of vibration of the partitions themselves, and not necessarily at the original frequency. This gives undesirable coloration.

I have already suggested within my own organization that we should consider another way of experimenting by synthesis rather than analysis. We should endeavour to build up experimentally an acoustic condition which

is subjectively satisfying.

How can we proceed further? Would a further discussion be of value? Or would it be possible to form a panel of architects, acoustical engineers, physicists and musicians who could attempt at any rate to arrive at more definite conclusions, and if asked to do so make recommendations? If such a panel were set up, who would set it up? Would it or could it have any responsibility, and if so, to whom? These are the next questions to face.



Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialized branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts. Telephone: Garston 2246.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101.

The Director, The British Standards Institution, 28 Victoria Street, Westminster, S.W.1. Telephone: Abbey 3333.

The Technical Manager, The Building Centre, 9 Conduit Street, W.1. Telephone: Mayfair 8641-46.

B.O.A.C. Office Extension. The JOURNAL was recently invited to inspect the office buildings under construction for the B.O.A.C., on the Great West Road, Brentford, in which a system has been used aiming at the lessening of labour and avoidance of priority materials. The foundations are of normal concrete type, with tapered pockets for the reception of the special columns. These are precast and prestressed, 7 in. by 12 in., with rebates to receive the wall panels. A precast concrete anchorage cone is embedded in the base of each column, and from it high tensile steel wires run up the column and pass through a light-alloy casting which is filled with ciment-fondu concrete and has a precast concrete anchorage cone embedded at the top. When pre-stressing is applied the column and the top aluminium casting are forced into a complete unit, which is then placed in the tapered pocket already formed in the foundation concrete. Concrete is then poured to form a monolithic joint between the base of the column and the footing.

The top aluminium casting has bolt holes for fixing the roof truss, which is of extruded aluminium alloy with gusset plates at the end for connecting to the casting at the top of the column. Each roof truss, in this particular case, is 33 ft. long, and was delivered to the site in one complete length. Channel section purlins support the corrugated aluminium roof sheeting; fibre board sheets being bolted and clipped to the purlins to form an inner skin. A false ceiling of fibre board is supported on T pieces slung from the roof trusses.

The wall panels are Alcrete, consisting of an external facing of aluminium sheeting stiffened with extruded channel sections and framed in similar sections, infilled with 0.5 density foamed cement; the internal face being plaster.

The accompanying illustration shows the system, which has proved to be one permitting quick erection and freedom of internal planning. The design and supply of all the prefabricated components came from Messrs. Structural and Mechanical Development Engineers, Ltd., of Slough, and the architect is Walter H. Williams [L], architect to the B.O.A.C.

National Building Studies. Bulletin No. 5, 'The laying of linoleum upon concrete floors', has now been published. The Building Research Station have received numerous requests for advice on this subject, and so they have issued this bulletin, giving 'recommendations for avoiding difficulties that sometimes arise in practice, particularly when linoleum is laid on solid ground floors where damp conditions may exist or may subsequently occur'. Contents: introduction, blistering and mould growth, waterproofing of concrete, sandwich membrane method, linoleum adhesives, practical considerations, summary and conclusions. Price 4d. net, from H.M.S.O.

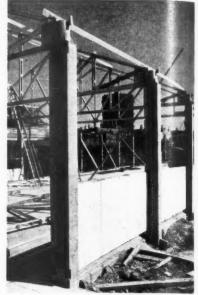
The Building Centre. A new electrical section was opened last month at the Building Centre, thus bringing up to date the exhibits that formerly were shown at New Bond Street, and later at Maddox Street. The decorative scheme and the general arrangement of the section have been carried out from plans prepared by A. Hulme Chadwick, A.R.C.A. An inquiry bureau is appropriately placed at the entrance to the section, where information and literature will be available.

Exhibits include the latest methods of illumination, and domestic refrigerators, cookers, and so on. Water heating by electricity is illustrated by sectional models showing the 'works', so that constructional features can be studied. Washing machines, drying cabinets, suction cleaners, irons, fans, kettles and other small appliances occupy the central portion of the section, which ends with a large panel on which are mounted components used in the wiring of buildings.

The display will be altered from time to time, to keep abreast of new developments.

Technical Information. Trade literature is so varied in format that it is a pleasure to receive some arranged on a definite system. The Research Department of Messrs. Steven and James, Ltd., of 4 Broad Street Place, London, E.C.2, have begun publication of information sheets under the title Building Progress'; they are single-sided foolscap sheets. The first one-recently issued-is headed 'Floor coverings. No. 1. Sylenta', and on the left are marginal headings, such as-the problem, the solution, details, sizes, thickness, colours, laying, scope, advantages and price. Against each heading is the relevant information. No. 2 deals in a similar manner with rubberwood floor covering.

It is possible that the system may be further developed, in which case an archi-



B.O.A.C. office buildings, special columns and top castings

tect may be able to file information in folders all of one size.

Portable Heat. Recent exhibitions have shown that radiators need not be permanently fixed, either under windows or on spine walls; that is, if they are electrically operated. As a variant from the usual radiant electric heaters there is now available a heater mounted on castors. In appearance it looks like the ordinary hot-water radiator, but the looped seamless steel pipes are filled with oil, hermetically sealed. A control switch regulates the heat at low, medium, or high, the approximate consumption being 400 watts on low, 800 on medium, and 1,200 on high. If required, a thermostat can be fitted. A further refinement is a water tray fitted near the top, between the loops. Details are: height, 26 in.; length, 26 in.; width, 8 in.; weight 77 lb.; total heating surface, 163 sq. ft. The exterior finish is cream, stove enamelled. This radiator is suitable for A.C. or D.C., and can be supplied to suit any voltage. The balance between the size of the heating element, the quantity of oil, and the radiating surface has been so arranged that the temperature of the radiator will not rise above 185 degrees F. The heater here described is called the 'Ocean', and is made by Ocean Home Appliances, Ltd., of 99A, Park Lane, London, W.1.

British Standards recently published.

B.S. 567.1948. Asbestos cement flue pipes and fittings, light quality. Price 3s. net, post free.

B.S. 835.1948. Asbestos cement flue pipes and fittings, heavy quality. Contents requirements for the quality of the pipes and fittings, recommendations for the method of fixing. Price 3s. net, post free.



Architectural Education: Numbers under training

Statement by the R.I.B.A. Board of Architectural Education on the Interim Report of the MARS Group and Architectural Students' Association Joint Committee on Architectural Education

SHORTLY AFTER the MARS Group and Architectural Students' Association Interim Report on Architectural Education was published the officers of the R.I.B.A. Board of Architectural Education stated in the R.I.B.A. JOURNAL and the professional press that they were not prepared to accept the statistics set out in the concluding sections of the Report without a careful examination, which was being undertaken. This examination has now been completed.

The officers of the Board of Architectural Education do not propose to comment upon the Report as a whole, but to confine their observations to those sections of the Report which deal with numbers under training, external students, and the summary of numbers, i.e. paragraphs 70 to 75, inclusive.

For ease of reference certain paragraphs of the MARS/Arch.S.A. Report are reproduced, and the comments of the officers of the Board are given below the paragraph or paragraphs to which they apply.

Paragraph 70: It is often assumed, particu-

arly by the Londoner, that training in a Recognized School is now the normal method of entry to the profession. And this assumption is inferred in the R.I.B.A. Report of the Special Committee on Architectural Education of 1943, where apropos the present decline of pupilage and apprenticeship it is stated that 'in the meantime the R.I.B.A. must maintain its own system of qualifying examinations for the benefit of those who, for one reason or another, have not passed through a Recognized School.' But a scrutiny of the numbers qualifying by external examinations and through the Recognized Schools reveals an astonishingly different state of affairs, for since 1935 the number of students taking the external examinations has greatly exceeded the number qualifying through the Recognized Schools. In 1938 the proportion was two to one, and today the difference is

The authors of the MARS Report are presumably referring to the Final Examination. The officers of the Board of Architectural Education have noted the use of the word 'taking' in the case of the R.I.B.A. external examinations and the word 'qualifying' in the case of the Recognized Schools. The numbers 'taking' the R.I.B.A. external examinations in any year are swollen by a large number of relegated candidates taking the examinations two or more times. These candidates thereby are

counted at least twice. Similarly to include those candidates who are taking the R.I.B.A. external Final Examination in Part I, Design, only, or Part II, the remaining subjects, only, would lead to false conclusions.

The officers of the Board have made a comparison as between Schools of Architecture recognized for exemption from the R.I.B.A. Final Examination and the R.I.B.A. external Final and Special Final Examinations. This comparison shows that in the year 1947 the figures were as follows:

Final Recognized Schools No. Passed 328 R.I.B.A. External Final and Special Final Examinations No. Passed 338

Paragraph 71. The picture is still more striking when we compare the numbers in the Recognized Schools in 1938-39 and 1946-47 with the total numbers studying architecture (i.e. all R.I.B.A. Probationers and Students). In 1938-39 those outside the Recognized Schools outnumbered those inside by more than five to one, and in 1946-47 by nearly three to one.

The following figures show that the number of Students and Probationers outside the Recognized Schools of Architecture exceeded the number of students in the Recognized Schools by just over two to one in 1938, and under two to one in 1947-48:

Year 1938	Number of Probs. and Students as per Annual Report 6,796	Numbers attending Recognized Schools 2,040	Difference
1947-48	12,840	4,550	8,290
	Report	Schools	ence 4,75

Paragraph 73. The rate of wastage amongst these External students is very large, for if we make the reasonable assumption that the great majority of students in Recognized Schools complete their courses and qualify, and compare the total numbers enrolling as R.I.B.A. Probationers with the total numbers becoming Associates, six to ten years later, we find that pre-war figures show about 30 per cent falling by the wayside. The remaining 70 per cent appear to have taken on the average about ten years to qualify. Even so, the number of External students

due to enter the profession as qualified men in the near future is considerable, for making the fairly generous assumption that the present strength of the Recognized Schools is in the nature of 4,000 as compared with their pre-war strength of 1,500, it appears that there are today nearly 8,000 young men and women training to be architects outside the Recognized Schools. At the pre-war rate of wastage about 5,500 will qualify—five hundred more than the total number of Associates in 1945.

The officers of the Board of Architectural Education have experienced some difficulty in determining how the conclusions in this section were reached. The authors of the Report may have overlooked the existence of the R.I.B.A. Special Final Examination, which is open to persons in practice and architectural assistants over 30 years of age, and the fact that candidates taking this examination are not required to have enrolled as Probationers. The following table shows for the years indicated the number of Probationers enrolled comparing with the number of Associates R.I.B.A. elected:

Year	Probationers enrolled	Associates elected
1929/30	614	141
1930/31	616	195
1931/32	576	201
1932/33	498	223
1933/34	545	314
1934/35	507	303
1935/36	574	301
1936/37	604	361
1937/38	761	364
1938/39	967	420
1939/40	653	392
1940/41	411	299
1941/42	519	170
1942/43	694	185
1943/44	817	133
1944/45	1.008	116
1945/46	1,134	159
1946/47	1,897	284
1947/48	1,627	681

It must always be borne in mind that the Probationership is not a class of Membership of the R.I.B.A. Enrolment as a Probationer is merely an acknowledgment that the potential student has reached the required standard of general education for entry into the profession. In the year 1947-48 the number in attendance at the Recognized Schools of Architecture was actually 4,550.

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Paragraphs 74 and 75

Paragraph 74. It is extremely difficult to determine how these eight thousand are preparing themselves to be architects, for no centralized records exist from which it is possible to find out the types of training received by candidates for R.I.B.A. External examinations. But we may perhaps arrive at some measure of the importance of the 'unrecognized' schools from the numbers of students in some of these schools during the session 1946-47. The enquiry carried out by this committee obtained information from 22 out of the 55 schools circulated, and in these 22 schools a total of 656 students were studying architecture, of whom 494 were working for their Intermediate and 52 for their Final Examination (leaving a balance of 110 who presumably did not propose to qualify). Of those working for the Intermediate 259 were taking a part-time and 235 a full time course, and of those working for the Final 33 were part time and 19 fulltime. If we make a cautious estimate of the total number of students in all 'unrecognized' schools who are working for R.I.B.A. examinations by adding approximately 50 per cent to the above figures, we arrive at a round figure of about 800.

SUMMARY OF NUMBERS

Paragraph 75. The present position, therefore, can be summed up in the following approxi-

mate figures:

(a) A total of 4,500 students in the Recognized Schools-a figure presumably temporarily swollen above the pre-war figure of 1,500 by interrupted studies and particularly by the attractive Ex-Service Grants which have encouraged many students to attend these schools who would not otherwise have been able to afford to do so.

(b) A total of about 800, or at the most about 1,000, in the 'unrecognized' schools, a figure which may perhaps be somewhat increased in the near future when these establishments attract the balance of students who can afford some school training but who cannot afford a 'Recognized' school without the help

of an Ex-Service Grant.

(c) A total of about 7,000 who are preparing for R.I.B.A. examinations without any school training whatsoever, not even part-time evening courses. Many of these presumably make use of one of the correspondence courses, but it is impossible to say how many. A large proportion are almost certainly working in offices as unqualified assistants, and a number-and perhaps a surprising number-are, even today, articled pupils.

In response to an enquiry made by the officers of the Board of Architectural Education, the MARS Committee have informed the officers of the Board that the figure of 8,000 'young men and women training to be architects outside the Recognized Schools' is derived from the following numerical summary appearing in the R.I.B.A. Kalendar 1948-49

	0 151
* *	 3,033
	 10,224
	13,257

The MARS Committee assumed that roughly one-third of the Students (1,011) had taken their R.I.B.A. Final Examination or had passed an equivalent examination in a Recognized School, or were working in offices pending election as Associates R.I.B.A. This meant that approximately 12,000 were engaged in the study of architecture. In the absence of exact statistics the MARS Committee assumed that 4,000 of these were in Recognized Schools of Architecture, leaving 8,000 outside the Recognized Schools.

In paragraph 75 (c) it is stated that there is a total of about 7,000 who are preparing for the R.I.B.A. examinations without any school training whatsoever, not even parttime evening courses. Many of these, it is stated, presumably make use of one or other of the correspondence courses, but it is impossible to say how many.

The figure of 7,000 has presumably been arrived at by deducting from the total 13,257 referred to, the numbers stated in Paragraph 75 (a) and (b) to be in attendance at the Recognized Schools of Architecture, and at the schools included in the R.I.B.A. list of schools for full-time preparation for the R.I.B.A. external examinations, and in the list of Schools of Art and Technical Institutions with facilities for the instruction of intending architects.

Against this total of 7,000 the following statement shows for the session 1947-48 the number of students in the Recognized Schools, the 'Listed' Schools, and the 'Facilities' Schools. This information is based on returns made by the schools con-

cerned in January and March.

Number of Students R.I.B.A. and Probationers as at July 13,257 Number of Students in-Recognized Schools taking exempting courses 4,553 Recognized Schools not tak-880 ing exempting courses ... Listed Schools 1,408 Facilities Schools 923 7,764

The officers of the Board consider that in view of the fact that about 1,000 Probationers were enrolled between January and July, and a fair proportion of this number would have fulfilled this requirement as a pre-condition of entry into a school the following September, it would be only fair to make allowance at the other end for the places in the Schools vacated by those who completed their course in July. At an approximate estimate this figure is in the neighbourhood of 470. in the Recognized Schools alone

5,023 In the view of the officers of the Board, therefore, it appears that instead of 7,000 Students and Probationers who, the Report states, are preparing for the R.I.B.A. examination without any school training

the number at its greatest computation does not exceed 5,000, and this number would be subject to considerable reduction if allowance were made for:

(1) Probationers who have taken the R.I.B.A. Special Final Examination (open to persons in practice and architectural assistants over 30 years of age whose applications have been approved by the Board of Architectural Education) and become Associates R.I.B.A.

Over the last three years at least 130 candidates taking the Special Final Examination were Probationers, the number in July last reaching 65 out of a total of 341 candidates. (2) Probationers who have become Licentiates.

During the past twelve months 142 Licentiates have been elected. It has not been possible in the time available to analyse all these applications, but out of 25 applications it has been established that 10 are Probationers.

(3) Probationers and Students who are taking correspondence courses.

The officers of the Board have ascertained that for the year 1947-48 there was a total of just over 3,100 students taking the various correspondence courses operating in this country. This does not include Navy, Army and Air Force personnel taking the War Office correspondence courses. It should be noted that awards under the Government Further Education and Training Scheme are made for students preparing for the examinations by means of correspondence courses to supplement experience gained in offices.

A high proportion of students taking correspondence courses do so because they live out of reach of any school facilities. For such students, correspondence courses provide a legitimate means, in fact the only

means, of organized study.

5,493

470

From the above information it will be realized that the figure of 7,000 students is reduced to just over 1,700, whose methods of training are unknown. This figure of 1,700 includes Probationers whose deaths have not been notified to the R.I.B.A. and other Probationers who have abandoned the profession without giving notification of the fact, for example, women who have given up their studies on marriage.

After making all deductions the residue is negligible.



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Edited by Charles Woodward [A]

NPARLIAMENT. Factory Extension (Development Charges). Asked if he will now state the arrangements for offsetting developmen charges under the Town and Country Planning Act in cases where a factory extension is to be built on land already held for that purpose, the Chancellor of the Exchequer replied: This matter has been parefully considered, but I have reached the conclusion that it is not possible to extend to land developed for additional factories the special arrangements made for land dereloped for a house for the owner's occupaion. The treatment to be given to claimants of this kind will be a matter for consideration in framing the Treasury scheme under Section 58 of this Act. (30 November 1948.)

WAR DAMAGE COMMISSION. Contribution towards Architects' fees. As has been frequently stated the R.I.B.A. have not agreed the Scale of Fees issued by the War Damage Commission, and in the JOURNAL for February 1946 the reasons for disagreement were published. The Commission's revised Scale, however, became operative from 8 February 1946.

Since 1946 the Practice Committee have had interviews and made representations to the Commission with a view to their published Scale being increased, but without success, and on the recommendation of the Committee the Council have decided that further negotiations should not be pursued, as there appeared to be no other alternative.

Members should therefore make it clear to their clients at the time of their engageent that the Commission's Scale of Fees only a contribution towards the client's ability to the architect, and that the fees yable by the client are those sanctioned the R.I.B.A. Scale of Charges. This Scale s down the time and mode of payment fees. There have been notices in the DURNAL setting out the architect's services or which the Commission, under their Regulations, are unable to repay to the lient, such as applications under Town Planning, Building Acts, Byelaws, licensing and party wall awards. Negotiations in respect of making and agreeing claims are also the liability of the client without the ossibility of recovery of the fees for such services from the Commission.

Members are therefore recommended in heir own interests to come to a clear understanding with their clients at the time of engagement.

MINISTRY OF HEALTH CIRCULARS. Greular L.R.L. 21/48, dated 17 December 1948, refers to the strictest economy in the use of steel being necessary. Local authoribles are reminded of the Minister's decision, conveyed in Circular 168/48 of 8 November last, that the revised specification of the British Standards Institution should be adopted in all construction involving the 4se of 25 tons or more of steel.

The allocation of new houses and flats for the period ending June 1949 has already been made to local authorities and the earmarking at the earliest possible date of the steel required, is considered a desirable precaution which will also facilitate the phasing of the Department's steel quota.

In future, therefore, local authorities are asked, when submitting an application for permission to go to tender for the building of multi-storey flats, to furnish a close estimate of the steel requirements, including an indication of the periods over which the requirements can be spread. This will enable the Department to consider, with special relation to the steel position, whether or not the application should be granted. The Circular is addressed to housing authorities in the London Region.

Circular 178/48, dated 17 December 1948, addressed to local authorities in England, states that the control over the distribution of cast iron goods is to end as from 1 January 1949, and I.S. Authorizations will cease from that date.

It will still be necessary for the time being to limit orders placed with manufacturers to cast iron goods required for essential new work and for such maintenance and repair work as can not be deferred. The Minister feels sure that authorities and more especially water undertakers will refrain at present from seeking to increase their stocks beyond the level which has obtained during the past twelve months.

When ordering pipes and specials authorities are requested to attach a certificate to the order signed by a responsible officer that 'the scheme has been authorized or approved by the Ministry of Health by letter dated...' (quote the date of the letter for each order). For a scheme costing less than £1,000, not subject to authorization under the Defence Regulations, the authority should not seek for priority in deliveries unless the work is of an urgent and essential character. When the order is for repair and maintenance work this should be expressly stated for the information of the manufacturer.

Any delay on the part of an authority in taking delivery at the appropriate times may result in the cast iron goods being used for another purpose, and authorities should therefore take steps to ensure prompt acceptance of deliveries. If the progress is such that deliveries can be deferred for more than six months beyond the agreed delivery date, the manufacturer should be informed in order that he may divert the goods to another important and essential scheme.

TOWN AND COUNTRY PLANNING ACT, 1947. Single House Plot owner on or before 1 July 1948. The Town and Country Planning Act imposes a development charge where a new house is built after 1 July 1948. It also provides a fund of £300 million for loss of development values, which *must* be claimed on or before 30 June 1949. The Central Land Board have already published information about these charges and payments in their pamphlets D. 1.A and S. 1.A.

The Board have been authorized to make special arrangements for owners of 'single house plots' who fulfil certain conditions.

A person is eligible who owned or leased (or who had contracted to buy or lease) a piece of land on 1 July 1948; and starts to build a house on that land, for occupation by himself, before 7 January 1952. The arrangements apply to one house only for any owner during the period. The Board will also consider cases on their merits where the house is built for the personal occupation of a member of the immediate family of the owner.

Such a person will be entitled to a payment from the £300 million fund not less than the development value in his land for the erection of a house; and will be allowed to set off development charge against this payment from the fund. He will be asked to undertake that his claim shall become a security for the development charge.

The effect of these arrangements is that no cash payment will be required by the Board at any time, unless market values rise between 1947 and the time when the house is erected.

Claims are assessed on values existing in 1947, development charges on values existing when the house is to be erected.

An essential condition is that a claim on the £300 million fund must be made on form S.1 to the Central Land Board before building starts, and in any case before 30 June 1949. If this claim is not made the development charge will be payable. (Circular House 2.)

Selected Appeal Decisions. The Ministry have published No. IV of the Bulletin of Selected Appeal Decisions under the Town and Country Planning Act. It is obtainable at H.M. Stationery Office, price 6d. net.

Central Land Board. The Central Land Board will accept a general authority from a claimant under Part VI of the Town and Country Planning Act, authorizing a professional adviser or agent to act for him. The Board recognize that this may be convenient if the same owner proposes to make a number of claims at different times and at different offices of the Board.

This general authority will be accepted subject to the following conditions:

(a) It should be sent, together with the first claim (form S.1), to the appropriate office of the Board. Specific attention should be drawn to the fact that it is a general authority. The Board will return the authority later with a covering letter bearing the reference number of the claim.

(b) Future claims lodged at the same office of the Board should refer to the general authority and quote the Board's reference number for the first claim.

(c) If subsequent claims are lodged at other offices of the Board the original authority should once more be sent to the Board together with the first claim to be lodged in that particular region. The further procedure outlined in (a) and (b) above will then follow

An authority can be accepted for a single claim where it is impossible for any reason

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(e.g., absence abroad) for the claimant himself to sign. The existing arrangements whereby the Board will accept the signature of agents who are accustomed to act for certain large estates are unaltered.

Central Land Board. Time-limit extended for claims and valuations. The time-limit for putting in claims on the £300 million fund has been extended to 30 June 1949, and the extension now becomes general for all claimants. The Board emphasize that there is no power to extend the time beyond this date. (S.1. 1948. No. 2822.)

The Board also announce that claimants may employ professional advice and still claim from the Board a contribution towards the fees incurred, up to 1 October 1949. S.1 must, however, be sent to the Board's office by 30 June 1949, complete except for the optional questions 26, 27 and 28, together with a slip attached to the claim form and bearing the words 'I/We have been retained by the claimant to complete the valuation questions by 31 October 1949'; the professional adviser's signature and the name and address of his firm. The professional adviser will then be sent a replica of the 'Optional Part of Form' with the Board's registration number, for completion and return by 31 October 1949. The Board will shortly make announcements on the submission of 'precautionary' S.1 claim forms (and the position with regard to professional fees) where owners of land have applied before 30 June 1949 to the Minister of Town and Country Planning for certificates under section 80 (1) (dead ripe land); or for determinations under section 92 (1) or section 85 (5) that their land comes or should come within section 85 (functional land held by a charitable body). These announcements will provide that Questions 1, 2 and 3 need only be answered in the first LAW CASES. In Practice Notes published in the June 1948 JOURNAL the case of John Laing and Son, Ltd., and the Assessment Committee for the Kingswood Assessment Area was referred to. The case concerned the rating of buildings and other erections which the builders themselves erected for the purpose of the works which they had to carry out, and which, at the completion of the contract, the builders would remove, i.e., workmen's canteens, huts, etc.

The Divisional Court held that Messrs-John Laing were in rateable occupation of all the structures which they had erected for the purpose of carrying out their contract.

Messrs. John Laing appealed to the Court of Appeal and the appeal was heard on 20 December last. After hearing arguments the Court dismissed the appeal and gave Messrs. Laing leave to appeal to the House of Lords.

Clause 3 of the R.I.B.A. Form of Contract has been amended so as to provide for cases where the contractor's temporary buildings are rated during the period of the contract.

BUILDING LICENCE. Extract from the 'Bucks Examiner', 10 December 1948.

A Sub-Agent of a Sub-agent!

At Chesham County Court on Tuesday there was an amusing dialogue between His Honour Judge Blagden, Mr. Norris Bazzard, Mr. Lloyd Davies (counsel), and Mr. J. T. Lloyd, engineer and surveyor to Amersham Rural District Council. A Chalfont St. Giles housing case was 'on', and Mr. Lloyd Davies took the point that the claim must fail because of legal fault. A licence was granted for a Chalfont St. Giles house, issued by Mr. Lloyd on behalf of the Council; while he was on holiday his deputy (Mr. Smith) granted an extension of the licence from £1,000 to £1,200—£200 more.

In the dialogue it was agreed that in housing matters the Ministry of Works sometimes acted for the Ministry of Health, but the Health Ministry was chiefly concerned, to Amersham Council acted as their agent in local matters; Mr. Lloyd was their subagent. It was held by His Honour that the work could not be done by a sub-agent of a sub-agent, and although Mr. Smith acted in all good faith he had no authority to 'extend' the licence. The claim must, therefore, fail.

In this case Harry Newton, builder, of Chalfont St. Giles, sued Charles E. Slade, Chalfont St. Giles, for £147 alleged owing on a building contract for a bungalow; on the legal point (as stated) the claim failed, and a counterclaim was adjourned sine die,

AGRICULTURE ACT, 1947, AND THE AGRICULTURAL HOLDINGS ACT, 1944. A booklet has been published by the Law Society written by Mr. J. Gordon Stanier, LL.B., introducing the above Act. It is not a text-book on the Acts, and professes to do nothing more than introduce them. The booklet is obtainable at the Law Society's Hall, Chancery Lane, London, W.C.2., price 3s. 6d. post free to normembers of the Society.

MINISTRY OF WORKS. Plaster. As fron I January 1949 an increase of 10s. per tor in the selling price of plaster and Keener cement manufactured by British Plaste the Board Ltd. has been authorized by the id-Ministry. Plasterboard. As from I January 1949 the Ministry has authorized an increase of \(^3\)d. per sq. yd. in the selling pric of wallboard and baseboard. Lead Shee hand Pipe. As from I January 1949 the Ministry has authorized an increase of \(^1\)d. Ministry has authorized an increase of \(^1\)d. In the maximum selling prices of lead sheet and pipe.

Correspondence THE ECONOMICS OF HOUSE

THE ECONOMICS OF HOUSE HEATING

Appended in the form of a letter to the Editor are Mr. Richard Eve's and Dr. J. C. Weston's replies to certain questions put to them at the meeting of the Architectural Science Board on 7 December 1948 and which could not be dealt with at the meeting. Sir, Before replying to specific points there are two matters which must be cleared up. First, there seems to have been some confusion as to what was included under the 'Capital Costs'. Capital costs included appliances, hot water services, flues and vents (chimney cap, flue, warm air outlets and ducts, fresh air inlets and ducts, boiler flue complete), builder's work, including pipe and tank lagging, gas carcassing and electrical installations used for space heating appliances and variants in cold water services required by different heating systems. It will be seen that the cost of structural insulation was not included, but variations in builder's work were included and savings achieved by variations in the installations are reflected in the costs.

The slide (now Fig. 2) showing the daily variation of temperature in the living rooms of three houses seems to have been misinterpreted, and several speakers referred to the slow rise of temperature during the morning. Since early in the morning the living rooms were already at, or above, the temperature required for the period 07.30 to 14.00, no attempt was made to increase the temperature until 14.00. The rise of temperature obtained up to this time was due to cooking and hot water draw off and, in part, to solar radiation and the redistribution of heat due to opening of doors by the laboratory staff.

In reply to Mr. Kell's question on the value of radiators under windows rather than on the spine walls; our limited data indicates that there is no great loss in comfort by putting radiators on spine walls in such small houses. Where designers find the under-window position embarrassing in costs or structural details we think that alternative positions could safely be used, bearing in mind the question of pattern staining on the wall above the radiator.

No definite information has been obtained on the question of drying cupboards

which was raised by Mr. Kenyon, but surveys bearing on this point are being made from time to time.

Mr. Blumsen rightly drew attention to certain points regarding the bedroom temperatures, but his comparison of house 17 with houses 35 and 36 is only valid in very cold weather. Also, in house 19, an alteration in the design detail of the first floor could provide more heat upstairs if required. This particular heating system is not conventional and still requires detailed engineering investigation before it can be considered entirely satisfactory.

Mr. Holliday's question regarding further information will largely be made by future publication, and his indication of the data required is appreciated.

While agreeing with Mr. Broderick on the value of insulation in existing houses apart from weather stripping and roo insulation, it is not easy to bring such houses up to a standard of U=0.20B.Th.U. sq. ft./hr./°F., or better.—Yours Faithfully

RICHARD EVE J. C. WESTON

The Building Research Station.

n housing Sir,-T e paper presented by Mr. R. Eve conetimes and Dr. J. C. Weston on the Economics of n. but the House deating is a valuable contribution oncerned; to our knowledge of domestic heating. The completity of heating requirements, which r agent in their sub vary so much from one house to another with the varying demands of the houseir that the holder, has deterred previous investigators a cent of a from undertaking a task of the magnitude th acted in described in this paper on this score alone, ity to 'extherefore, and the authors are to be congratulated. As was rightly pointed out, any conclusions with regard to the choice of heating equipbuilder, of ment based on these tests, conducted as F. Slade. they were under 'simulated' conditions, ged owing must be carefully qualified, and it is to be galow; on hoped that those responsible for selecting aim failed. equipment will not jump to too many coned sine die. clusions before confirmative data from the

occupied houses is available.

The favourable results obtained with central heating using a very high efficiency boiler were perhaps to be expected in houses built with good thermal insulation; no doubt such appliances, being reasonably automatic, will give similar results even when the houses are occupied, whereas those equipments which are more subject to personal control will perhaps show an even wider 'spread' than in the controlled tests

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factory.

The question of ventilation is of parer. As from ticular interest, and the figures quoted in Os. per too the paper emphasize the loss of heat which and Keenel results from excessive ventilation. Unforish Plaster ish Plaste tunately, many women have very fixed by the ideas on the question of 'open windows', 1 January and under these conditions the loss of heat may be very considerable, particularly in elling price those systems employing mainly convection Lead Shee heating. Here again, the results on the occupied houses will be watched with great increase o interest-perhaps the men folk will prevail num selling in keeping some of the fresh air outside in its proper place!

Apart from the whole house heating systems, the need for flexibility in heat output becomes of considerable importance, and presents a difficult problem for the designers of solid fuel appliances providing a multiple duty. The difficulty becomes more marked when such appliances are installed in house plans for which they are not ideally suited; this is perhaps one ispect of the present series of tests which night be criticized, although it is realized hat the introduction of special house plans to suit every individual heating equipment would have been a further complication to an already complicated investi-

Nevertheless, to obtain the best performance from certain types of heating equipment, the house plan and the layout of ipes for hot water supply—to mention only one item-may need very special consideration if fuel consumption and comfort conditions are to be reasonable.

Perhaps the greatest advantage of central heating is its ability to cope with a wide variety of house plans, but the provision of some form of open fire in addition always presents a difficulty. Perhaps we should remember that the more expensive apartment houses in the States and the more expensive homes in this country are those with open fireplaces in addition to central heating. As such, the open fireplace may be classed as a luxury, but obviously a very desirable one.-Yours faithfully,

J. S. HALES

Sir,-I have lived in 20 houses in the past 20 years, and in all of them anyone sitting round an open fire in winter was subject to draughts whistling about head and feet. Usually the source is divided equally between leaky doors, windows and floor boards. My latest house has been recently built; the ground floor is solid concrete with wood blocks; the window area is only about 12 per cent, and the windows fit well; the fire is a modern continuous burning open type and has an underfloor air duct drawing combustion air from the outside. In spite of this draughts still whistle about head and feet, the source being from the one door into the room. This suggests that with an open fire the amount of air that will be drawn in over the top of the fire is constant, and that if floors and windows are comparatively tight, as in my house now, then three times as much will come in through the door. The result being that though by better insulation and an improved fire appliance a good room temperature can be obtained, yet the draughts remain a continuing source of irritation and discomfort.

It is noted with the houses at Abbotts Langley that in order to get the heating appliance in the centre of the house, Plan A results in a single living room in which the fireplace is flanked on each side by a door. This is becoming a common feature and architects responsible for such rooms ought to be made to live in them. In this respect my experience of heating experts is that if left to themselves they would build houses that might be efficient boiler houses but would hardly be homes, and I suggest that this is an aspect that Mr. Eve as the architectural head of the team might

especially consider.

I would add that I know the Building Research Station very well indeed, and Mr. Eve and Dr. Weston slightly. I admire their work intensely, and my comments above are meant to be constructive.-Yours DONALD H. LITTLE

THE GOLDEN SECTION OR CUT

Sir,—In his letter in the December JOURNAL Mr. A. Leonard Roberts instructs me to argue thus, "Robert Fletcher . . . found 115 published schemes of proportion" . . . if this is true of the human figure it must, surely, also be true of architectural composition!' Stated in approximately logical terms, this seems to mean that the fact that there are 115 schemes in the one field implies that there are 115 schemes in the other. Mr. Roberts can hardly claim to be skilled in logic. Undaunted, however, by the fact that mathematics is a branch of logic, he takes up the defence of 'set square geometry', a rash thing to do unless this particular geometry is neither logical nor mathematical.

The Hon. Secretary ends his letter with an injunction to me to open my mind 'in

the true spirit of studentship'. In other words, if I can not believe Mr. Roberts's dicta I probably have an unopened mind. This is a somewhat oracular attitude which, in these days, would be refreshing if it were not so closely paralleled by the outlook of those who damn their opponents as reactionaries'.

Mr. Roberts's position is so very vulnerable that rather than deploy battalions to overcome a sandcastle I will make a concession to the effect that I have no doubt that the incidence of beliefs in schemes of proportion is of some historical interest, and that if it had been treated as such in a scholarly manner (as, presumably, Robert Fletcher has done) without claims being made to theoretical or practical value for the contemporary architect, my criticisms would not have been made. Claims, however ill-defined, have none-the-less been made, and, at a time when mathematics and logic have reached a level beyond the comprehension of Euclid (or the 115 authors of schemes of proportion), they appear less than naive.

My acknowledgment of the Institute's functions as a learned society was made in recognition of its history. My concern is for the maintenance of these functions and for its reputation as an Institute in a world in which learning, particularly in mathematics, has advanced a little beyond the point reached two thousand two hundred odd

years ago. Finally, I must disabuse the Hon. Secretary of the notion that he is dealing with a 'precocious' student. It is a pity he devoted half of his valuable letter space to chiding a child of his imagination, and it is singularly unfortunate that he should have accused me of both bad manners and carelessness; for, as a member of the Registration Council, Mr. Roberts may have assisted at the ceremony in which mine was one of the names recorded, in October of last year. The 'other architects besides myself' to whom I referred particularly, and whom the Hon. Secretary could 'only assume to be fellow students', have been Associates now for five, seventeen and twenty-eight years respectively. Had there not been a war I myself should now have been qualified for seven years.-Yours J. C. HOLMES [A] faithfully,



Colour and Lighting in Factories and on Machines

Report of a Conference held at the R.I.B.A. 24-26 November 1948

SOME SCIENTIFIC thought in recent years has been devoted to the use of colour in buildings, and factory problems in particular have attracted the attention of investigators. Practice, of course, remains an art, and the scientists themselves insist most vigorously upon this; but it is an art in which technical skill plays an exceptional part.

As so often is the case with applied arts, the technical content is drawn from many quarters-often from quite unexpected nooks and crannies of science-and its sound development depends on meetings of the people with the different necessary interests. The Council of Industrial Design recently organized a Conference which served just such a purpose for the colour problems of factories, when for three days, 24-26 November, the people who do factory colouring and the people who do the scientific investigation had ample opportunity for discussion. The Council was associated with the British Colour Council for the Conference, and the Royal Institute of British Architects was able to act as host.

On this short review of the proceedings it is only possible to pick up the main pattern of ideas.

Dr. Ling, the Medical Director of Roffey Park Rehabilitation Centre, and R. F. Wilson, the Art Director of the Colour Council, in their opening talks voiced the value of colour treatments, and here was one great theme. Dr. Ling's work is the rehabilitation of factory personnel who become casualties of neurosis. Some 10-15 per cent of the factory population suffer from disabling neurotic illness, and part at least of it is due to unsatisfactory working conditions, especially where the work itself is uncongenial, or is difficult or causes strain. He estimated the annual productive loss due to neurotic illness to be of the order of £100 million, and his view and that of Mr. Wilson was that by good lighting and the proper use of colour, the health of the factory personnel and the productivity of the factories could be improved. Dr. Ling showed a most moving and interesting film of the work at Roffey Park, and everyone who has been privileged to visit the Centre will bear witness to the healthy impact of a skilfully designed environment.

From two speakers from the Building Research Station his thesis gained supporting evidence. Dr. R. G. Hopkinson spoke of the great swing now taking place in lighting practice from design in terms of foot candles to the subjective approach, in which comfortable and efficient vision were the criteria of design. He described and demonstrated different forms of glare, particularly those which caused either disability or discomfort, and spoke of their effect upon performance. It was clear that at the lighting levels of 10 foot candles or more which are now commonly found in factories, far more can be done to aid vision and reduce strain and fatigue by improving the quality of lighting than by increasing quantity. In fact, he went on to argue that increases in quantity now are more likely to add to glare problems than improved visual performance. The subjective approach ran through Mr. W. A. Allen's remarks too, as he developed the ideas of using colours in such a way that they made the work the natural focus of attention and diminished the dangers of distractions in the view. Thus Dr. Ling and Mr. Wilson had made out the case for reducing strain and fatigue, and the B.R.S. speakers demonstrated ways of doing it with light and colours. Mr. Allen showed a short film of the development of a colour treatment for a computing machine which reduced the strain of operating it.

In any discussion of factory colouring the machine is naturally the centre of interest, and several speakers dealt with it. Apart from Mr. Allen, there were contributions by Mr. H. Grimshaw, Mr. H. D. Murray and Mr. P. J. Gay, of the Paint Research Station. Sometimes divergences of view were evident, but for the most part there was good agreement. The chief difference seemed to be in the lightness of colour to use on machines, one speaker being willing to admit pale colours where the others felt that they should not generally exceed the brightness of the materials of the work itself. This view seemed to prevail, and has the practical significance that if it is correct it rules out cream or cream-andgreen colourings, both of which were explicitly mentioned in this connection. Colours which had support were grey tones of buff, pale green or blue. The 'greying' was interesting because it emphasized the desirability of avoiding colours which were stronger than those of the materials being worked. These three rules were in fact explicitly mentioned, that machine colouring should be in desaturated hues, of about the same brightness as the work, and of a colour related to the work in some way. Thus, for instance, the complementary colour might be chosen-perhaps buff where steel was being worked, blue for wood-working, and so on-or a neutral tone where the work itself was colourful.

Simplicity was emphasized by most speakers, though differences in degree were evident. On the one hand it was suggested that even if machines were kept mainly to one colour the appearance of most factories was so confusing and complicated with odd shapes and shadows that there was no real danger of dullness-no danger, that is, which could not easily be avoided. Colours for identification and for safety would be present in any case, it was argued,

and often the materials of the work, or wood, or the walls would introduce sufficient, if not excessive variety. On the other hand, one of the speakers thought there was merit in using two colours or machines or even in colouring alternal machines in alternative colours. Here obviously was a case where experience and skilled taste would be the practitioners' best guide.

The introduction of colour into factories is usually carried out against a good deal of friction, and the person is fortunate who sees no need to add to it by modifying the machines themselves. Major modifications would of course generally be impracticable but Mr. Allen mentioned the value of small background screens fitted behind the workpoint to simplify the immediate back ground. These often are practicable, and make a surprising improvement in comfortable working by removing the risk of dis tractions and strong lights and shadow very near the line of work. They are, o course, also a good place to put a colou chosen to give clarity to the work.

Mr. Gay produced a remarkably lucid review of the types of paint which could be used for machine colouring. Experience shows that factory managements fre quently accept any 'durable' paint for thei machinery, and it was most interesting to hear Mr. Gay describe the different proper ties of different kinds of paints. From hi remarks it stood out clearly that some o the newer kinds of paint (the so-called synthetic paints with resin media) offered generally the best resistance to staining and deterioration from the greases, oils and coolants commonly found in factories Anyone who has had an opportunity to see different factories some years after a paint treatment has been carried out can bear witness to the astonishing difference which the proper choice of paint can make to the maintenance and general appearance of the place. Easy maintenance encourages good maintenance, and the wrong paint will always prove a bad investment.

The general colouring of factories bears an obvious relationship to the colours found desirable for the machines, and the only novelty to the ordinary designer is it having to start with the machine rather than a 'colour scheme' for the place as a whole. Of the several speakers who had occasion to speak of the walls, floors and roofs, D. L. Medd, from the Hertfordshire County Architect's Department, had the most interesting remarks to make, and the fact that they grew out of work on school made them in no way irrelevant. Primarily the criteria employed were psychological and the speaker had schooled himse particularly from Ostwald's work. He showed excellent colour slides of the work of the Hertfordshire Department in its schools.

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One general point made by Mr. Medd will require serious attention from the paint makers. At present, as he pointed out, the paint cards both of the B.S.I. and most of the makers show at best an arbitrary choice of colour, based on such factors as popularity and the special requirements of certain users. These constrain the architect very sharply, and Mr. Medd made a plea for greater flexibility, mentioning in this connection the desirability of being able to mix from a limited number of colours, plus black and white, a full range of colours. There are practical difficulties to be cleared away, but the need for some such system has been felt by many architects for a long time.

In picking out the pattern of practical points for this report, general material of great interest has had to be left out. Fortunately, the papers of the Conference are to be made available by the Council of

Industrial Design, and interested readers can then refer to them. Dr. W. D. Wright, of Imperial College, provided a most attractive discussion of colour vision and the colour of surfaces, and went some way into the problems of advancing and receding colours, harmony, and so on. His paper, like Mr. Gay's, was an exceptionally lucid account of ideas which have seldom been discussed successfully for audiences of this kind. Then Mr. H. D. Murray contributed two papers, one more useful than exciting, on terminology, and the other, very stimulating, on the technique of using technicians. Finally, one must mention the excellent account of factory lighting by Mr. E. B. Sawyer, whose paper was fortunately bracketed with Dr. Hopkinson's on the same afternoon, so that the two complementary sides of lighting and vision fell readily into place.

Thus three days of pleasant and useful discussion were passed, and at the end a 'Brains Trust' of all the speakers, with Mr.

Basil Marriott [L] from the Council of Industrial Design in the chair, gave an opportunity for serious questions to be raised and argued.

One was left with two over-riding impressions. One was the realization that the designer, the man of taste and skill, retains the central position; and, indeed, no one else desires it. Colour in factories, like colour elsewhere, is best handled by people with sound æsthetic judgment, provided they have the requisite special technical skill.

The other impression was of the great possibilities that exist of raising the whole standard of industrial design, by raising the standard of environment. Design is a habit of mind, and in its cultivation the environment plays a substantial part. Here is the link that binds the Council of Industrial Design to all this work, and those who took part in the Conference must be grateful to them and their collaborators for a very successful series of meetings.

Book Reviews

Planning Basis for Kent. Incorporating reports upon the county planning survey and the county road plan. Kent County Council. [By J. W. R. Adams and others.] 13 in. vii + 121 pp. + 12 maps, mostly folding + 5 pls. (phots.) + 2 folding maps in pocket. n.p. 1948.

The Kent County Council has recently published a detailed and elaborate factual survey of the physical, social and economic structure of the county entitled *The Planning Basis for Kent*, as the foundation for future planning and development operations that are in due time to materialize from this analysis.

This county occupies a peculiar position that although it does over-lie the main arteries of England it serves as the high road to the Continent and its communications therefore need special consideration. The county roads maintainable by the County Council cover about 3,500 miles, and whilst they are considered to be adequate in extent, the width and accommodation are in many cases inadequate. Despite these deficiencies, little congestion or delay occurs with the week-day traffic. the chief difficulties arising from week-end traffic to the coast. The report mentions that there are no major proposals affecting the railways in Kent, but adds that decisions upon railway improvements will be communicated from time to time'. There exist, however, the need and opportunity to reorganize the various railway systems and stations, especially around the City of Canterbury and other important centres. These were developed under the auspices of rival companies, and the elimination and rectification of redundant railway features should present less difficulty under nationalization than formerly.

Enormous time and energy are today devoted to research as a prelude to planning. Many technologies are involved

with a corresponding variety of interpretation, according to the particular interests of each. To the architect, however, there remains but one comprehension, which embraces all the others and weaves them into a unity of beauty. At present, under the stress of these over-organized post-war times, this ideal aspect, and the hopeful prospects of the war years, have been obscured by national economy and the uncertainties of the new Town and Country Planning Act.

The important influence which the architect should exercise in all planning development has been somewhat undermined, and can only be adjusted by a greater appreciation on the part of the profession of the service which it is capable of rendering in this respect to the community. It is significant to note from the 'Acknowledgments' in the report that no architect member is mentioned amongst the group who have compiled the publication.

We are reminded in the report that negative planning schemes made under previous planning law are being revoked, except upon a limited range of subjects, and in addition there has followed a substantial measure of decentralization under the new Act with a delegation of powers for the control of development, partly to County District Councils and partly to Area Sub-Committees of County Councils. These Area Sub-Committees are to cooperate in the preparation of development plans. There should be unity of purpose amongst them as well as regard for the relationship of their respective areas to the county as a whole and to the remainder of England. Moreover, it is pointed out that in spite of the research already undertaken, further extensive surveys will be needed in connection with the duties of County Councils under the Town and Country Planning Act, 1947. It is hoped that the architect may be allowed to make his contribution to this great work.

One welcomes the prospect of the preservation to the public of the amenities

of the Darenth Valley and other areas of special scenic beauty within the county, which this important and valuable publication so admirably stresses.

J. L. DENMAN [F]

The Georgian Playhouse, by Richard Southern. (Georgian Group.) $8\frac{1}{2}$ in. \times $6\frac{1}{2}$ in. 70 pp. + pls. text illus. Pleiades Books. 1948. 12s. 6d.

This is one of a series of 'illustrated monographs' dealing with Georgian architecture, issued under the general editorship of the publications sub-committee of the Georgian Group. The author is well known in the literary world of the theatre, and his choice of subject is commendable.

The scope of the book has been wisely influenced by detailed exploration of most of the few remaining buildings of the period, and by the investigation of prints, drawings and photographs, forming parts of eminent collections. Many plates are reproduced, and it is perhaps fortunate that their general excellence rewards the reader for his labours in continual reference from the text to the illustrations concentrated mainly at the end of the book. This process does not make for easy reading.

The book is divided into four chapters. The first deals with the influences upon which the Georgian playhouse was founded and how they affected the planning of the theatre; the second analyses four town theatres built between the years 1750-1788; the third considers in some detail three country theatres erected between 1766-1802; and chapter four reviews the Georgian theatres of the 19th century.

Some of the main planning elements of the Georgian playhouse are considered, and contrasted with the continental theatre of the same period. We note with interest that the problems of acoustics were at least known to exist, for in 1767, when the theatre at Bath was reconstructed with a dome over the auditorium, the result was 'injurious to both sight and hearing', and

the theatre was altered in 1775 and the

dome removed.

The influence of social conditions upon the planning of the Georgian playhouse is mentioned, although one wishes that this theme had been developed a little further, for much investigation still remains to be done. Had the author extended his researches, this book, which is interesting and valuable, might have been fascinating. HENRY ELDER [L]

Geometry, II. (Second-year course.) By George A. Hanby. (Pitman's Secondary technical building series.) 7½ in. ix + 121 pp. text illus. Pitman. 1948. 6s.

This is the second of three volumes on Geometry in this new series. It is suitable for the student who has commenced some special study in building subjects.

Builders' Materials, by Bernard H. Knight and Rena G. Knight. 2nd ed. 8½ in. viii + 304 pp. text illus, Arnold, 1948, £1 1s. This is the second edition, revised and brought up to date, of a book first published in 1939 and reprinted at the end of the war. Its object is 'to explain the physical nature, method of manufacture, uses and defects of all the building materials in common use', and it 'includes, wherever possible, simple explanations of the ways in which they can be tested'.

Alterations to Buildings, by Ronald G. Snell. 71 in. v + 105 pp. text illus. Pitman. 1948. 8s. 6d.

A guide and handbook for building trade apprentices and builders inexperienced in the problems of alterations. There are chapters on equipment and scaffolding practice, shoring, needling, and the manipulation of steel beams, forming openings in existing walls, fireplace removals and additions, shop front alterations and extending buildings, etc.

'So You Want to be an Architect', by Michael J. F. Secrett. (Careers of today series, 5.) 7½ in. 68 pp. incl. pls. Daily

Mail. [1948.] 2s. 6d.

This small book competently summarizes the information likely to be needed by young men and women considering architecture as a career. Almost every aspect of training and entry into professional life is covered, and the hesitant should be grateful to find clear answers to so many

Solid and Laminated Wood Bending, by W. C. Stevens and N. Turner. (Department of Scientific and Industrial Research: Forest Products Research Laboratory.) 93 in. viii + 71 pp. + pls. H.M.S.O. 1948. 5s. Little has been written on the processes of wood bending, and this is probably the first comprehensive and authoritative book on the subject-in English, at any rate. It is essentially a practical handbook, although a certain amount of theory is included. There are many explanatory diagrams and illustrations.

Prevention of Iron and Steel Corrosion. Processes and published specifications. By Dinsdale. 81 in. 67 pp. Louis Cassier. Iliffe. 1948. 5s.

A conscientious endeavour to index methods and standard specifications relating to the prevention of the corrosion of iron and steel, and to present them in an easily accessible form.

Painting and Decorating Craft Practice, by James Lawrance. (Architectural and building series.) 8½ in. 152 pp. incl. 4 pls. text illus. Spon. 1948. 9s.

A new title in the useful and attractively produced 'Architectural and Building Series', of which A. M. Chitty [F] is the general editor.

Glass Through the Ages, by E. Barrington Haynes. [Glassware.] (Pelican books, A 166.) $7\frac{1}{4}$ in. 238 pp. + (64) pls. text illus. Harmondsworth: Penguin Books. 1948. 2s. A short history of ornamental glassware, which provides the essential background for those who contemplate a profounder study and a great deal of information for the less exacting reader. The sixty-four page section of photogravure illustrations is an outstanding feature, and characteristic of 'Penguin' enterprise. J. C. P.

Building Supervision. Notes on good building practice, by W. R. M. Pippard. $8\frac{1}{2}$ in. 122 pp. Spon. 1948. 8s. 6d.

The title of this book suggests that it is intended as a guide to supervisors of building work in progress, and it fulfils that function admirably. But it is more than that. Under the main title appear the words Notes on Good Building Practice', and this perhaps is the better title.

The book contains a great deal of sound advice expressed simply, concisely and, of course, with authority. In just over a hundred pages the author has covered most forms of construction and finish in common use today with emphasis on choice of materials, standard of workmanship, precautions necessary when detailing and pro-

tection during construction.

The section dealing with soils com-mences 'The difficulties and expense involved in making good defects due to settlement are sufficient reason for ensuring that the foundations of a building are designed on a sound basis.' With complete economy of words that sentence expresses one of the most important points in building, which not all architects and few building owners fully realize. Or again, under the heading Water Penetration: 'Many of the lessons learned by builders in former times regarding the prevention of dampness are now being neglected, with disastrous results.' How true!

The author uses direct and simple phrasing to convey exceedingly useful guidance. It is not cheerful reading; all materials have vices and all methods of construction have snags. It is the purpose of this book to point out these things. It is the architect's duty to study and act upon the advice given and so improve the

quality and durability of building. More careful study by the architect would also reduce the anxiety of the supervisor who sometimes is faced with problems on the site arising from a poor specification and ignorant or casual detailing.

C. S. WHITE IF

New Ways of Building, edited by Eric de Maré [A]. (Sections by K. Hajnal-Kónyi and others.) 9 in. × 7 in. 235 pp. incl. pls. text illus. Architectural Press. 1948. £1 10s. With a team of seven specialists, Mr. de Maré has planned an objective survey of contemporary building technique in relation to a group of materials. The following eight subjects are covered: Concrete, by Dr. K. Hajnal-Kónyi; steel, by O. Bondy; timber, by Phillip O. Reece; glass, by K. Cheesman; brickwork, by W. B. McKay; light metals and plastics, by Philip Scholberg; and insulation, by C. C. Handisyde.

Each section is sub-divided so that the subject is examined under an orderly sequence of headings. For example, Light Metals, by Philip Scholberg, has fifteen sections, after a general introductory paragraph, dealing with aluminium, corrosion resistance, production capacity, structural work, production methods, fabrication, applications, external uses, internal uses, equipment, finishes, design, secondary metal, and magnesium alloys. The concluding section gives sources of information and a bibliography. This is typical of the structure of each section.

Altogether there are 219 illustrations, both in the text and in the form of halftone plates. This book certainly qualifies for the conventional phrase 'an indispensable work of reference'. Unfortunately, the type area of the text is too wide to be read with comfort, which may be the result either of economy standards in book production or an outmoded belief that excessive horizontality in typography reflects the old-fashioned 'modern' movement in JOHN GLOAG [Hon. A]

Brickwork in Junior Building Courses, etc., by E. G. Dormon and E. J. Elmes. (Pitman's Secondary Technical Building Series.) 7½ in. x + 246 pp. incl. pls. text illus. Pitman. 1948. 7s. 6d.

A textbook on the craft of bricklaying, intended for secondary technical school courses and for students preparing for the 'Intermediate Grade' written examination in 'Brickwork' of the City and Guilds of London Institute.

Architecture. A guide to those who are considering it as a career, by Robert Lutyens and Harold Greenwood. (The Road to Your Career Series.) 71 in. 60 pp. People's Universities Press. 1948. 2s. 6d.

A very small book that contains most of the facts needed by those contemplating architecture as a profession. Its effect should be encouraging rather than dissuasive. The authors provide ideas as well as information.

ling. More Modern Influences on the University Aspect of Professional Training in Surveying, by $C. A. Hart. 8\frac{1}{2}$ in. (ii) + 23 pp. H. K. Lewis. 1948. 2s. 6d.

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The inaugural lecture of the first Professor of Surveying and Photogrammetry in the University of London, comprising an able analysis of the nature, scope, needs, value and future of the profession. Brigadier M. Hotine. Director of Colonial Surveys, contributes an introduction.

Shell Concrete Construction, by H. G. Cousins. (Reinforced Concrete Association: Technical Paper No. 6.) 81 in. 32 pp. text illus. Lond. 1948, 2s. 6d.

A paper read at a meeting of the Reinforced Concrete Association in January 1948, giving a straightforward description of shell concrete and related problems. The text is appropriately illustrated and some valuable comments emerge from the discussion summarized at the end.

The City of To-morrow and its Planning, by Le Corbusier, pseud. Trans. of Urbanisme, 8th ed., by Frederick Etchells. 2nd English ed. 81 in. 310 pp. incl. pls. Archtl. Press.

It is most opportune that when so many other books by le Corbusier are appearing, the Architectural Press should re-issue this pioneer work first published in 1924 under the title of Urbanisme. This is a slightly reduced facsimile of the original English edition. As in the English version of Vers une Architecture, the French title has been mistranslated into comfortable words less charged with meaning; and with each reproduction the illustrations-many of them from old picture postcards-get a little greyer. But the message comes through.

Le Corbusier has naturally had some second thoughts since 1924; but this book stands the years incredibly well. Few men have made so clear, so uncompromising pronouncements to see them still current after 25 years with so little devaluation. One cannot review a book of this rare kind, except to urge that it be read again with ever more tolerance and understanding. Le Corbusier has survived all that has been said and written about him, and with each re-reading the reason for his huge influence becomes clearer: he is the one great exponent of architectural sensuality and poetry. He approaches all problems through his infallible architectural sense. Vivid architectural images appear on every page of this book. 'Light streams about us' ... 'Confusion is woven into the very texture of our cities' . . . 'A magnificent forum descending by stages to immense parks' . . . 'Low buildings lead the eye on into the foliage' . . . 'A pattern of sky-scrapers' . . . 'Sky everywhere, as far as the eye can see' . . . 'The pylons show scarlet, the cables white; the mountains dominate the scene' . . . 'The eye . . .' The eye, the eye!

And he has a style of writing which, even in this somewhat verbose translation, can call up these architectural images; it is a strange style, but it works at its own job. No nonsense-jargon here such as others use on le Corbusier; all is precision, clarity and feeling. I must quote the revealing note on p. 205: 'It bores me more than I can say to describe like some minor prophet this future City of the Blest. It makes me imagine that I have become a Futurist, a sensation I do not at all appreciate. . On the other hand how thrilling it is before one sets pen to paper to work out on a drawing board this world which is almost upon us, for then there are no words to ring false and only facts count.' And, finally, even in 1924, the cri de coeur: 'I am an architect, no one is going to make a politician of me.'

PETER SHEPHEARD [A]

Vision of Scotland, by G. S. Fraser. Drawings by Barbara Jones. 91 in. 180 pp. + pls. + map, folding, text illus. Paul Elek. [1948.] £1 5s.

There is a certain family resemblance to the 'Vision of England' series, but this book is altogether a more ambitious and expensive production. The author is a poetquite a good one too-but, like many another poet, he is an even better writer of vivid descriptive prose. In particular his chapter on Glasgow is admirable. Barbara Jones contributes some pleasant drawings, a few of them in colour, and the many photographs are excellent, although not, of course, predominately of architectural interest. Some may think the road map an asset. J. C. P.

Norfolk, by R. H. Mottram. Drawings by Kenneth Rowntree. (Vision of England series.) 9 in. × 7 in. 48 pp. + (32) pp. Paul Elek. 1948. 9s. 6d.

Norwich is in closer touch with the country around it than are many county towns, so to be Norwich-bred, like Mr. Mottram, is a good qualification for a writer on Norfolk, and his style is well suited to the informal manner of the 'Visions'. The best feature of the book, however, is the photographs. Kenneth Rowntree's drawings have admirers also.

Suffolk, by Olive Cook. Drawings by Rowland Suddaby. (Vision of England series.) 9 in. × 7 in. 56 pp. + pls. + map, folded. Paul Elek. 10s. 6d.

Those who see the countryside as a background to farming or some other activity will find this a strange vision of Suffolk. For Miss Cook's Suffolk is almost without activity, a place where time has stood still for 300 or it may be 500 years, and where no one seems to have done anything in particular since the wool trade unfortunately declined at the end of the 17th century. As might be expected, the effect is as lifeless as the 'unreal, mediæval streets' of Lavenham, which the author so evidently admires without apparently perceiving that these marvels of the scraper and restorer's art really are unreal mediæval. However, the general reader will find this book a useful guide to the chief places of interest, and for those who

enjoy an archæological society's outing but do not read its Transactions it would be an adequate present.

At the end of the book there are 61 (the publisher says 68) photographs, including several of original and interesting subjects by Edwin Smith. The text is illustrated with free and easy sketches by Rowland Suddaby and, besides a two-page coloured reproduction of Speed's tiresome map, there is a useful ‡ in. scale Ordnance sheet folded in the back cover.

RAYMOND ERITH [F]

Fountains Abbey, then and now, by A. E. Henderson. (Then and now series.) 2nd ed. 8½ in. (32) pp. incl. pls. S.P.C.K. 1948. 2s. 6d.

This is an enlarged edition, made topical by the recent proposal to reconstruct the abbey church. The book was one of a number on abbeys and cathedrals (mostly in the Library), in which photographs as existing and drawings, from approximately the same standpoints, of the original buildings are put together for comparison; this ingenious method has the advantage of showing the factual basis of the (proverbially hazardous) pictorial restorations. Authorities are given for many features, though some of the fittings may be problematical. Such pictorial works give welcome stimulus to the reader.

H. V. M. R.

Cathedrals, and how they were built, by D. H. S. Cranage. $8\frac{1}{2}$ in. \times $6\frac{1}{2}$ in. viii + 42 pp. + (xix) pls. text illus. Cambridge: Univ. Press. 1948. 8s. 6d.

This is a welcome further work from the veteran author of Churches of Shropshire (1894-1912), Home of the Monk (1926), and other works, till lately Dean of Norwich. The text deals chiefly with the familiar constructional and plan development; but the illustrations contain some new material, such as Sir Guy Dawber's sketch of an 'ox lorry', reinforcement of Winchester nave [1905-12], Durham triforium interiors, Rheims nave vault when roofless, and Emerson's Liverpool design [1886]. Altogether a book suitable for either the public or a serious student. There are a bibliography and an index. H. V. M. R.

Heating and Ventilating's [sic] Engineering Databook, etc., by Clifford Strock. 11 in. X 8½ in. (vi) + var. (several sequences) pp. text illus. New York: H. and V. jnl., Industrial Press. 1948.

This is a new American publication compiled primarily for the benefit of engineers and contractors, but the British architect should also find it valuable-indeed, he can hardly afford to neglect the results of American experience in this field. The book provides essential data on the design of equipment and systems for air conditioning, refrigeration, piping, heating, air sanitation and ventilation in buildings. On the whole the information is easily accessible, although an over ingenious method of page numbering may discourage some readers.

Notes and Notices

NOTICES

Fourth General Meeting, 8 February 1949, at 6 p.m.

The Fourth General Meeting of the Session 1948-49 will be held on Tuesday, 8 February 1949 at 6 p.m. for the following purposes: To read the minutes of the Third General

Meeting held on 11 January 1949.

The President, Mr. Michael Waterhouse, M.C., to deliver an address to architectural students and present the Medals and Prizes 1949

Mr. Anthony Chitty, M.A., A.M.T.P.I. [F], to read a Criticism of the designs and drawings submitted for the Prizes and Studentships 1949. (Light refreshments will be served before the

meeting.)

Fifth General Meeting, 22 February 1949, at

The Fifth General Meeting of the Session 1948-49 will be held on Tuesday, 22 February 1949 at 6 p.m. for the following purposes:

To read the minutes of the Fourth General Meeting held on 8 February 1949; formally to admit new members attending for the first time since their election.

Professor Anthony Blount, C.V.O., to read a paper on 'Mannerism in Architecture'.

(Light refreshments will be served before the meeting.)

Session 1948-49. Minutes II

At the Second General Meeting of the Session 1948-49, held on Tuesday 14 December 1948

Mr. Michael Waterhouse, M.C., President,

in the chair.

The meeting was attended by about 530 members and guests.

The Minutes of the Inaugural General

Meeting held on Tuesday 9 November 1948 were taken as read, confirmed and signed as

The following members attending for the first time since their election were formally

admitted by the President:

AS FELLOWS

Peter Caspari, Alan Chalmers, Benjamin Chippindale, Norman Green, E. Mayorcas, B. F. Pennells, E. E. Pettengell, Gordon Tait.

Miss M. H. Aitken, E. J. Armitage, M. H. Brashier, D. H. Brown, C. G. Clark, Miss K. M. H. Eves, A. F. Farebrother, R. K. Fowler, E. A. Gardner, R. P. H. Gillett, J. M. Grice, W. J. Harvey, M. H. Hitchman, J. C. L. Iredell, W. S. Lewis, Louis Lipski, Raymond Lockyer, W. G. Lucas, Miss P. A. U. Macgregor, Miss C. M. Nightingale, J. R. Pearce, Douglas Pearcy, A. M. Quickenden, D. A. Shanks, C. K. Slade, Miss B. J. Sydenham, Mrs. B. A. Tribe, A. M. Tribich, V. H. Wakefield, N. R. Wilkinson.

George Elliott, E. J. Evans, F. H. Garner, W. L. Gibbs, W. J. L. Horsman, M. Hutchinson, Arthur Korn, A. L. Linford. E. R. Muxlow, J. H. Peek, O. P. D. Williams. The President announced that the Council proposed to submit to His Majesty the King the name of Mr. Howard M. Robertson, M.C.

[F], as a fit recipient of the Royal Gold Medal for 1949.

Sir Malcolm Trustram Eve, Bart., M.C., T.D., K.C., Chairman of the Central Land Board and the War Damage Commission, having read a paper on *The Town and Country*

Planning Act and the Work of the Central Land Board answered questions on the subject, and on the motion of Mr. T. Cecil Howitt, D.S.O. [F], seconded by Mr. Arthur Bailey, O.B.E. [F], a vote of thanks was passed to Sir Malcolm Trustram Eve by acclamation and was briefly responded to.

The proceedings closed at 8.5 p.m.

Town and Country Planning Act 1947: Fees for Professional Services

The Council have approved the adoption of the following Scale of Fees issued by the Royal Institution of Chartered Surveyors in respect of professional services in connection with claims for depreciation of land values under Part VI of the Tewn and Country Planning Act 1947: Claims for Depreciation of Land Values: Fees as between Surveyor and Client.

(a) The rates shown in the Scale below must be treated as a general guide only, and should be applied with discretion. The intricacy and difficulty of the services rendered are likely to vary considerably, according to the type of property and other circumstances which may arise in a particular case. The rates of remuneration, therefore, should not be regarded as rigid, and if the scale fee in any given case appears too high or too low in relation to the work done, it should be adjusted to the circumstances.

(b) The fee in each case covers inspection, the completion of the relevant parts and the submission of the prescribed form, and, where possible, agreeing the claim with the appropriate authority, but is exclusive of services rendered to the claimant in connection with an appeal to any tribunal.

(c) A separate fee will normally be charged for

each unit of claim.

(d) The fees shown below are in all cases exclusive of travelling and other expenses, disbursements, copies of documents and lithography.

1. WHERE A CLAIM IS MADE:

5 guineas per cent on the first £100 o the un. Der restricted value as settled with the Central Land Board or on appeal.

SCALE

2 guineas per cent on the next £400 of the unrestricted value as settled with the Cen al Land Board or on appeal.

I guinea per cent on the next £500 of the unrestricted value as settled with the Central Land Board or on appeal.

guinea per cent on the next £49,000 of the unrestricted value as settled with the Central Land Board or on appeal.

guinea per cent on the remainder of the unrestricted value as settled with the Central Land Board or on appeal.

Notes .- (i) Fees on the above scale are payable by the client, who shall be credited with any contribution towards such fees which may be recoverable from the Central Land Board, If, however, the contribution from the Board should be higher than the fee on the above scale (as may happen in exceptional cases), the fee payable by the client shall be the said contribution.

(ii) One-third of the estimated fee is payable when the claim is lodged and the balance of the fee when the amount of the development value (i.e., the claim) has been agreed with the Central Land Board or fixed on appeal.

WHERE A SURVEYOR IS INSTRUCTED AND NO CLAIM IS ADVISED:

Fee by arrangement, depending on the extent of the responsibility involved and the other cir-

cumstances of the particular case.

The separate question of fees in respect of determination of development charges is under consideration, and the appropriate scale for such services will be announced shortly.

British Architects' Conference, Nottingham, 29 June-2 July 1949 The next Annual Conference of the R.I.B.A. and its Allied and Associated Societies will be

British Architects' Conference, Nottingham Hotel accommodation available for the nights of 29, 30 June, and 1 July 1949.

		ROOMS			Mins. from		
	With double beds	With twin beds	With single beds	Bed and breakfast double	Bed and breakfast single	Full daily per person	Con- ference Hqrs.
NOTTINGHAM Black Boy Hotel, Long Row County Hotel, Theatre Quadrant Flying Horse Hotel, The Poultry	2 4	2 4	10 4 10	17/~* 30/~*	17/-* 15/-* 13/6	29/-* 24/3	5 3 5
Gresham Hotel, Carrington Street George Hotel, George Street	6	6	10	14/-* From 16/6*	14/-* From 16/6*	=	15 10
Victoria Station Hotel, Mansfield Road Welbeck Hotel, Mansfield Road	12	=	16 10	33/-* 16/-*	16/6* 16/-*	28/6* 25/-*	3 4
DERBY Midland Hotel	10		10	36/6 and	19 - and	31/- and	40
York Hotel		****	3	40/-	21/- 15/-	33/- 25/-	40
GRANTHAM George Hotel	4	5	12	16,-	16/	28/-	45
LEICESTER Grand Hotel	3	4	6	15/-*	15/-*	25/6*	45
LINCOLN Saracen's Head Hotel	10 10	10 10	10 10	_	_	=	60 60
NEWARK-ON-TRENT Robin Hood Hotel		3	_	23/-	11/6	33/9	40
OLLERTON The Hop Pole Hotel	3	2	4	12/6	12/6	23/-	40

* Plus 10 per cent surcharge

In addition the following hotels are available, but have stated that they cannot reserve a specific number of rooms, and intending Conference members should write to these hotels for information: Albert Hotel, Nottingham; Angel and Royal Hotel, Grantham; Friary Hotel, Derby; Ram Hotel, Newark-on-Trent, Notts; Hutt Hotel, Newstead Abbey, Linby, Notts; Unicorn Inn, Gunthorpe, Notts.

held at Nottingham from 29 June to 2 July 1949 nclusive at the invitation of the Nottingham, Derby and Lincoln Architectural Society. Parculars of the programme will be issued in due course, and the application form for member-ship of the Conference will be sent to members with the March issue of the JOURNAL.

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tly.

It is expected that there will be a large attendance of members from all parts of the ountry, and they are advised to arrange their notel accommodation at the earliest possible noment, to avoid the risk of disappointment. The Executive Committee of the Conference ave furnished the list of hotels in and around

Nottingham published on page 140.

annual Subscriptions and Contributions Members' subscriptions and Students' contrioutions for 1949 became due on 1 January. The amounts are as follows:

										£	S.	a.
Fellows										7	7	0
Associates										4	4	0
Licentiates										4	4	0
Students										1	11	6
For mon	h	ore	rec	ident	:	12	the	1	22.0	ne-c	con	nic

lominions who are members of Allied Societies n those dominions, and for members resident verseas in areas where no Allied Society is available, the amounts are as follows: f. s d

Fellows					4	4	0
Associates					3	3	0
Licentiates		,			3	3	0

Exhibition of Prize Drawings, 12 January to 8 February 1949

An Exhibition of Designs and Drawings submitted for the Prizes and Studentships 1949 will be open at the R.I.B.A. from Wednesday 12 January to Tuesday 8 February 1949 inclusive, between the hours of 10 a.m. and p.m. (Saturdays 10 a.m. and 5 p.m.)

Disciplinary Action Mr. Leonard Bennett, a Licentiate, of 10 Church Road, Bishopstoke, Hants, and Apartados de Correos 1893, Caracas, Venezuela, South America, was expelled from membership

by decree of the Council dated 14 December, 1948, made pursuant to the Bye-laws.

A.S.B. Lecture

TUESDAY 15 FEBRUARY 6 P.M.—Force and Form. The æsthetics of stress distribution. F. J. Samuely, B.Sc., Assoc.M.Inst.C.E., M.I.Struct.E., F.I.A.S., M.I.W. The three basic types of structure; shape of structural members as dictated by external forces; general attitude towards the architectural expression of stresses; making stresses visible, and concealing them; structural shapes in modern materials; latticed and half-latticed construction.

R.I.B.A. Diploma in Town Planning

The Council of the Royal Institute have decided that the R.I.B.A. Diploma in Town Planning

shall be discontinued.

The Examination to be held in 1950, the closing date for applications for admission to which is I January 1950, will be the last examination qualifying for the R.I.B.A. Diploma in Town Planning, and will be based on a revised syllabus and time-table which has been prepared and will be available for distribution in due course.

A special examination for candidates previously relegated under the existing syllabus in not more than two subjects will be held in 1950, and any candidate who fails at that examination to satisfy the examiners will be unable subsequently to qualify for the R.I.B.A. Diploma.

The Use of Titles by Members of the Royal Institute

In view of the passing of the Architects' Registration Act 1938, members whose names are on the Statutory Register are advised to make use simply of the title 'Chartered Architect' after the R.I.B.A. affix. The description 'Registered Architect' is no longer necessary.

New Building Materials and Preparations

The attention of members is drawn to the fact that information in the records of the Building Research Station, Garston, Watford, Herts, is freely available to any member of the architectural profession, and architects would be well advised when considering the use of new materials and preparations of which they have had no previous experience, to apply to the Director for any information he can impart regarding their properties and application.

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Final Examination

Mr. Ronald A. Patten [Student], Westcliff-on-Sea, has been awarded Distinction in Thesis.

The British School at Rome: Rome Scholarships in Architecture, Mural Painting, Sculpture and Engraving

It has been decided to increase the value of these Scholarships from £250 to £375 a year in view of the higher cost of living and travel in Italy. The increase will apply to the Scholar-ships offered for award in 1949, the general regulations for which have already been circulated and which should be amended accord-

COMPETITIONS

COMPETITION RESULT

Richard Shops Competition (Limited). 1. Bronek Katz and R. Vaughan, A.A.Dip [A]. Brian Peake, A.A.Dip. [F]. 3. George Fairweather and R. Furneaux Jordan, A.A.Dip. [FF]

GENERAL NOTES

Ministry of Education National Short Courses for Teachers of Architecture-R.I.B.A., London, 8-9 April 1949

The Ministry will hold a Short Course on 'Architectural Education' in conjunction with the R.I.B.A. Board of Architectural Education, by the courtesy of the President and the R.I.B.A. Council, at the R.I.B.A. Head-quarters, 66 Portland Place, London, W.I. commencing 10.15 a.m. Friday 8 April and terminating 5 p.m. on Saturday 9 April, 1949.

The course is limited to full-time and particular the course is limited to full-time and particular the course of the course of

time Teachers of Architectural Subjects in Technical and Art Colleges and Schools which offer professional courses for intending architects. In addition to the Heads of Archi-tectural Departments and Senior Lecturers, other Teachers and Studio Masters engaged on instruction in the subjects of Planning, Theory and History of Architecture, the Arts and Decorative Crafts closely associated with Architecture, Interior Design and Colour, may be nominated. Local Education Authorities are asked to keep the number of nominations from any one College to a minimum, as the available accommodation is limited.

There will be no fee charged for attending the course, and the Ministry will repay the excess over 10s, of the third class monthly return railway fare by the cheapest route from the address from which the teacher travels to attend the course. This limit will apply whether the journey is made by rail or otherwise. Cab or omnibus fares will not be allowed in addition to railway fare. For those members who travel daily to and from their homes or places of residence the maximum allowance under this head will be limited to £1. The course will be non-residential, but lunch and tea will be obtainable at moderate prices. Copies of the programme and list of hotels will be available to members admitted to the

Applications for admission must be made immediately on Form 106 R.S.C. obtainable from any Local Education Authority or from the Ministry. After receipt, the completed forms should reach the Ministry by return of

Architectural Association Scholarships in Archi-

The Council of the Architectural Association offers the following Scholarships in Archi-

ENTRANCE SCHOLARSHIPS

The Leverhulme Scholarship*. Value £200 per annum

The Minter Open Entrance Scholarship. Value £100.

The Sir Walter Lawrence Open Entrance Scholarship, Value £100.
The Metal Window Scholarship (presented by The British Metal Window Manufacturers' Assoc. Ltd.). Value £75 per annum.
The Natural Asphalte Council Scholarship (presented by The Natural Asphalte Mine-Owners and Manufacturers' Council). Value £50 per annum.

The Northern Aluminium Scholarship (presented by The Northern Aluminium Company). Value £50 per annum.

The Patent Glazing Scholarship (presented by The Patent Glazing Conference). Value £50 per annum.

These Scholarships, which are tenable for five years at the A. A. School of Architecture, will be available to students of British nationality. They will be awarded for one year, with the intention that they shall be renewed from year to year until the student has completed the course; renewal being subject to m satisfactory report of the student's progress, and to proof of the continued need for such assistance.

SENIOR ENTRANCE SCHOLARSHIP

The Metal Window Senior Scholarship (presented by The British Metal Window Manufacturers' Assoc. Ltd.). Value £50 per annum.

This Scholarship, which is tenable for two years at the A. A. School of Architecture, is open to students of British nationality, who have passed the Intermediate Examination of the R.I.B.A., either externally, or at another Recognized School of Architecture, and is for entry to the fourth year of the course, and subject to satisfactory progress by the student, will be renewed for the Fifth Year.

Full particulars and forms of application may be obtained from the Secretary of the Architectural Association, 36 Bedford Square, London, W.C.1, and forms of application should be received not later than 1 April 1949, for all except * (1 June 1949).

*In 1950 and thereafter the closing date for applications for the Leverhulme Scholarship will be 1 April.

Mr. D. C. Maclurcan [A], of Sydney Mr. Donald Charles Maclurcan, a partner in the firm of Fowell, Mansfield and Maclurcan [F/F/A], of 70 King Street, Sydney, has been elected President of The Illuminating Engineering Society of Australia (N.S.W.) for the 1949

Notes from the Minutes of the Council

MEETING HELD 14 DECEMBER 1948 Appointments

(A) Committee to Consider Present and Future of Private Architectural Practice: Mr. S. W. Milburn [F], in place of Mr. Howard Robertson [F].

(B) University of Hull: R.I.B.A. Representative on Court of Governors: Mr. Andrew Rankine [4], in place of Mr. F. J. Horth [F].

(C) Society of Housing Managers Conference on Municipal Housing, London, 28 and 29 January 1949: R.I.B.A. Representative: Miss J. G. Ledeboer [A].

(D) Royal Sanitary Institute Health Congress, Brighton, 23 to 27 May 1949: R.I.B.A. Representative: Mr. W. J. Thrasher [4], Chairman, Brighton District Chapter, South-Eastern Society of Architects.

The Honorary Associateship: The Secretary reported that Mr. F. G. Baker, lately Chief Clerk, R.I.B.A., had accepted the Council's nomination for election to the Honorary Associateship.

R.I.B.A. Diploma in Town Planning: The Council awarded the R.I.B.A. Diploma in Town Planning to Mr. Maurice B. Patience [41].

International Union of Architects: By arrangement with the International Union of Architects the Council have approved of the Institute assuming administrative responsibility for the British National Committee of the International Union. The following have been invited to accept appointment to the British National Committee: Professor Sir Patrick Abercrombie [F], Mr. A. F. B. Anderson [F], Mr. S. L. G. Beaufoy [F] (Ministry of Town and Country Planning), Mr. H. T. Cadbury-Brown [A], Mr. Kenneth Campbell [A], Lieut.-Colonel H. P. Cart de Lafontaine [F], Mr. Anthony Chitty [F], Professor H. O. Corfiato [F], Mr. R. A. Duncan [A], Mr. R. E. Enthoven [F], Mr. H. M. Fletcher [F], Mr. J. H. Forshaw [F] (Ministry of Health), Mr.

R. J. Gardner-Medwin [A] (Scotland), Mr. Frederick Gibberd [F], Mr. Erno Goldfinger [L], Mr. B. Goodhart-Rendel [F], Mr. Leslie Grahame-Thomson [F] (Scotland), Professor W. G. Holford [F], Mr. Arthur Ling [A], Mr. H. V. Lobb [F], Mr. B. Lubetkin (unattached), Mr. F. McArdle [F] (Northern Ireland), Mr. R. H. Matthew [A], Mr. J. M. Richards [A], Mr. Howard Robertson [F], Mr. W. A. Rutter [F] (Ministry of Works), The Hon. Godfrey Samuel [F], Professor Gordon Stephenson [F], Sir Percy Thomas [F] (Wales), Mr. F. R. Yerbury [Hon. A], Mr. F. R. S. Yorke [F].

Allied Societies' Conference: Attendance of Deputies in the unavoidable absence of Nominated Representatives: The Council approved, subject to the concurrence of the Finance and House Committee, the recommendation of the Allied Societies' Conference that deputies be permitted to attend the meetings of the Conference in the unavoidable absence of the nominated representative of a Society, Branch or Chapter. Arrangements are to be made by which these deputies are duly nominated in the capacity of reserves at the time the representatives are nominated by a Society, Branch or Chapter. Attendance by deputies will be restricted to those deputies so nominated.

The new arrangement will take effect from the beginning of the Session 1949-50.

Royal Engineers: Qualification Pay for Officers: The Secretary reported that following representations made by the Council on the subject of recognizing architectural qualifications as entitling Royal Engineer officers to qualification pay, the Army Council had agreed to consider the matter in the course of a review of qualifications now being carried out.

Central Land Board: Expiry Date for Lodgment of Claims under the Town and Country Planning Act, 1947: The Council have written to the Ministry of Town and Country Planning and to the Central Land Board urging an extension of the expiry date for the lodgment of claims to the 30 June 1950.

R.I.B.A. Architecture Bronze Medal: Berks, Bucks and Oxon Architectural Association: The Council approved the recommendation of the Jury of the Berks, Bucks and Oxon Architectural Association that the awar of the R.I.B.A. Architecture Bronze Medal in the area for the period 1936-46 be made in favour of St. Luke's Church, Cowley Road, Oxford, designed by Mr. H. S. Rogers, F.S.A. [F].

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Town and Country Planning Act, 1947: Fees for Professional Services in connection with Claims for Depreciation of Land Values: The Council approved the adoption of the scale of fees issued by the Royal Institution of Chartered Surveyors in respect of professional services in connection with claims for depreciation of land values under Part VI of the Town and Country Planning Act, 1947.

The scale is published in the notices column on page 140.

The question of fees in respect of the determination of development charges is under consideration:

Membership: The following members were elected: as Honorary Fellows, 2; as Honorary Associates, 2; as Honorary Corresponding members, 17; as Fellows, 15; as Associates, 411; as Licentiates, 15. Students: 179 Probationers were elected as Students.

Applications for Election: Applications for election were approved as follows: Election 8 February 1949: as Honorary Associates, 1; as Fellows, 10; as Associates, 55. Election 3 May 1949 (Overseas Candidates): as Fellows, 5; as Associates, 8.

Application for Reinstatement: The following application was approved: as Licentiate, Colin Holden Smith.

Resignations: The following resignations were accepted with regret: S. Aziz Ali [F], John Higgin [A], Mrs. Joan Lutzen McCutcheon (nee Hyland) [A], John Hough [L].

Applications for Transfer to Retired Members' Class under Bye-law 15: The following applications were approved: as Retired Associate: Charles Dixon Rochester; as Retired Licentiates: George Lister Coates, William Herbert Pearson

Obituaries

Dugald Sutherland MacColl, D.Litt. (Oxon.), LL.D., M.A. [Hon. A], art critic, author and painter, and editor of the ARCHITECTURAL REVIEW from 1901-05, died at his home in Hampstead on 21 December last.

Mr. MacColl graduated at Oxford, and in 1887-89 he did the then fashionable 'grand tour' but with a more serious view to the career of art critic, and from 1890 to 1895 he held that post on the Spectator. The death of his mother left him with a small independent income, and he retired from the Spectators. devoting himself to painting, but not for long. Journalism called him again, as in 1896 he contributed regularly as art critic for the Saturday Review, and in 1900 wrote his first considerable book, Nineteenth Century Art. At this time he was lecturing at the Slade School on the history of art.

He was outspoken in criticizing the administration of the Chantrey Bequest, and when he became a member of the newly formed Board of Trustees at the Tate Gallery some modifications and, indeed, reforms to the Bequest were introduced. In 1906 Mr. MacColl was appointed to the Keepership of the Tate Gallery, gave up current criticism, and devoted himself to the rearrangement and cataloguing of the pictures, serving on the Board of Trustees from 1917-27.

Sir Ian MacAlister mentions in his appended appreciation 'the Thames Bridges controversies', but another contentious subject into which in 1925 he threw his limitless energy was the proposal to erect a sacristy under the north wall of Westminster Abbey, a proposal of which he strongly disapproved. He also intervened in the discussion on 'Gothic' additions to the colleges at Oxford and in the effort made to preserve the Foundling Hospital.

Lack of time and health prevented Mr. MacColl from executing the prodigious literary output of which he was doubtless capable, but in 1940—in his 81st year—his poems (the product of 60 years) were collected into a volume and published. When he was 86 appeared his Life, Work and Setting of Philip Wilson Steer, a highly individual biography, as well as an authority on the art history of MacColl's early days. The book was awarded the James Tait Black memorial prize.

He gave his name—and his services and unswerving devotion—to many societies and institutions, whose object was the preservation and encouragement of the Arts. This is self-evident by the honours bestowed upon him, among many being: Hon. Member of English and Scottish Water-colour Societies, New English Art Club and Art Workers' Guild, and membership of the Royal Fine Art Commission.

Sir Ian MacAlister, M.A. [Hon. A], sends the following appreciation:

'The passing of D. S. MacColl is the loss to the R.I.B.A. of an old friend and valued helper. He was truly a remarkable figurepoet and painter, art critic and gallery chieftain, a doughty fighter in all sorts of good causes, and one of the most spirited controversialists of the last half century and more. He was a really ardent friend of the R.I.B.A., and could be counted upon to rush into battle in support of any cause in which he believed the R.I.B.A. was right. His activities will perhaps best be remembered by the tremendous vigour which he put into the fight over the Thames Bridges problem. To him the saving of Waterloo Bridge was not just a matter of preserving an interesting part of old London. He was infuriated by the whole management of the affair by the London County Council. He saw, as he believed, a story first of neglect without excuse, then a dishonest case put up to cover the story. and, finally, a riding roughshod over the whole case put up by the combination of experts and enthusiasts who formed the Thames Bridges Conference. History will decide whether or how far he was right or wrong, but his fight was an inspiring spectacle. At his age he could not be expected to have much sympathy with modern trends in architecture, and his admiration was reserved for what he considered to be scholarly examples of the best spirit of the Renaissance. He was an admirable and incisive speaker, and in whatever company he found himself he was always an outstanding figure-fearless da': Berks, and self-confident, and a "bonny fighter" who ciacion: The was workey of the manly stock from which he sprang, the MacColls of the Hebrides.'

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A. [F].

Franklin K. Kendall, M.A. [F], doyen of the profession in South Africa, died at his home in Rondebosch, Cape, on 20 November. He practised with Mr. L. Marriott Earle at the Rhodes Building, St. George's Street, Cape Town, and who has sent the following particulars of Mr. Kendall's career and work:
"He was closely associated with the late Sir Herbert Baker and Frank Masey, whose office he joined in 1896. Born in Australia on 2 January 1870, his father being manager of the P. & O. Line there, the family later returned to England and lived at Blackheath, where Mr. Kendall was educated at Blackheath School, and studied architecture at University College, London, becoming an Associate R.I.B.A. in 1894. After serving in the office of Ernest George and Yates, he arrived in South Africa in 1896 and stayed with his incle, sometime Rector of Newlands Parish, Cape, and the following year became junior partner with Herbert Baker and Masey. Later Mr. James Morris was associated with him as Mr. James Morris was associated with him to partner for some years. Subsequently Mr. Brian Mansergh and Mr. Pat Shillington were also associated with him. Mr. Kendall was a foundation member of the Cape Institute of comparison of which he Architects, in the formation of which he played an active part, being a member of the first Council in 1902 and becoming President in 1913-15, later being made Honorary Life Member. In 1912 he became a Fellow R.I.B.A., and on completing fifty years as a member in 1944 he received a letter of congratulation from the then President.

For many years Mr. Kendall took an active interest in the formation of the architectural school now established as a Faculty of the University of Cape Town, in which he acted for some years as an external examiner, and in December 1936 the honorary degree of Master of Arts in Architecture was conferred upon him by that University. In this year also he was awarded the Bronze Medal of the Cape Institute of Architects for the execution of the North Transept of St. George's Cathedral, Cape Town. Among the earlier works in the design of which Mr. Kendall was associated, either in partnership or otherwise, were the City Club, St. George's Cathedral, Rhodes Buildings, Rhodes Memorial, Marks' Build-ings, the South African College buildings, including the Hiddingh Hall, additions to the House of Assembly, Mount Nelson Hotel, Humewood Hotel at Port Elizabeth, also Government buildings at Bloemfontein. Then among the later buildings came the National Gallery (in collaboration with the P.W.D.), the crematorium (with C. P. Walgate), the London and Lancashire House, Sheik Joseph's Tomb, Faure, all in Cape Town. The more recent works included various colleges at Grahamstown, among them being St. Peter's Home, St. Andrew's College, Chappel and Wan Memorial, and Rhodes University College. How Memorial, and Rhodes University College. He was engaged by the Government in the restoraion after fire of the famed old Cape homelead, Groot Constantia, and was author of the book, The Reconstruction of Groot Constantia.

Like Sir Herbert, the Master, he was also reatly versed in the traditional architecture and furniture of the Cape, and was responsible or a number of restorations and additions to old homesteads, done in sympathetic manner. Up to a few weeks before he died he still maintained a keen interest in the affairs of the office, and within the last months he assisted his partner, L. Marriott Earle, in the design of wedding gift from the Cape Provincial Government to the Princess Elizabeth and the

Duke of Edinburgh, which took the form of a large display cabinet. He also played an active and leading part in art, literary and dramatic societies, among them being the Fine Arts Association, through whose efforts the foundation of the National Gallery was largely due, and of which he subsequently became a trustee. Mr. Kendall was the oldest member of the Owl Club (joining in 1896), and became President in 1933, finally being elected a honorary life member. He was a foundation member and some time vice-chairman of the S.A. National Society, and also a member of the S.A. Society of Artists, at some of whose annual exhibitions his paintings were to be seen, and was a member of the Town and Country Planning Association, of which he was recently elected a honorary life member.

Mr. A. T. Babbs, F.R.I.C.S., who went out to help Sir Herbert Baker in the early days and who was one of Mr. Kendall's oldest friends, has sent the following appreciation:

'A large circle will miss the genial personality of Franklin K. Kendall. The high place he held for a long period in the esteem of the architectural profession and in the cultural life of the Cape, was a worthy tribute to his outstanding ability and artistic gifts.

'His close association with Sir Herbert Baker in his earlier years enthused him with the ideals of that master of his craft. But, independently of this, Kendall was an artist to his finger tips, with a fine feeling for restraint and proportion in design, and the niceties of detail. He faced hard knocks with tranquility of mind and a gallant spirit, which won the constant admiration of all his friends. He was equally brave when severe physical disability overtook him. Coolness and a rare gift of humour were his to the last. As one closely associated with him for half a century the writer cherishes his memory as that of a true gentleman, with a lovable nature and a capacity for loyal friend-ship, which he bore unsullied to the end.'

John Laurie Carnell [F], aged 76, died at his home, St. Clair, Graywood Road, King's Lynn. He was senior partner in the firm of Carnell and White, of Paradise Chambers, King's Lynn, and retired in April 1947.

Mr. Carnell served his articles in Exeter, became assistant to the late Mr. Herbert Green at Norwich, and took over his practice when he died. He was a Fellow of the Norfolk and Norwich Association of Architects, a Rotarian, and a member of the Society for the Protection of Ancient Buildings.

William Frederick Cartwright

Mr. R. M. H. Grieves [L], of Allcock and Grieves, 11 Leicester Road, Loughborough, has drawn attention to an incorrect reference made on page 97 in the Obituaries columns of the December JOURNAL concerning the death of Mr. William Frederick Cartwright [A].

The second paragraph commenced 'He was articled to the late E. Allcock [F], whereas Mr. Edward T. Allcock to whom it refers is alive and in good health, but has retired from practice.

The error is regretted.

Thomas Dinham Atkinson, of Winchester, a Fellow until he resigned, on retirement, in 1940, died on 29 December. As well as being well known as the author of several architectural publications, he was a prominent ecclesiastical architect in his day, being responsible for church work at Maes-y-Groes, North Wales, Cambridge, Ely and Winchester: he was sometime architect to the Dean and Chapter of Winchester Cathedral and to the Warden and Fellows of Winchester College as well as late Hon. Consulting Architect to the Incorporated Church Building Society.

Mr. Atkinson was a pupil of Sir Arthur Blomfield, A.R.A. His earliest publication was Old Cambridge Plate (1896)—he was hon. secretary of the Cambridge Antiquarian Society—and his last *Local Style in English Architecture* (Batsford, 1946). He was an active member of the Hampshire and Isle of Wight Architectural

Association. Robert Boker [Hon. Corresponding Member] was born in Russia in 1872 and died recently at

his home in France, where he had lived for a number of years.

He finished in 1897 his training at the School of the Emperor Nicholas I of Architecture and Civilian Engineers, St. Petersburg, and then spent three years in Western Europe studying the history of architecture. He worked in the atelier of architecture of Professor Redon attached to the School of Beaux-Arts in Paris, and followed at the same time conferences at the School of Beaux-Arts and at the Sorbonne, later working at the Academy of France, Villa Medicis in Rome under the architect Chifflot (Grand Prix de Rome). Upon his return to Russia, in 1900, he was admitted in the service of the State as professor and chief librarian at the School of Emperor Nicholas I of Architecture and Civilian Engineers, and remained there until he left Russia in 1921

In the last years of his stay in Russia he was professor of the history of architecture of the Middle Ages in Western Europe at the

Institute of History of Art.

Mr. Boker took part as a representative of the Imperial Society of Architects at St. Petersburg in a series of congresses in Russia and abroad, among others in the International Congress of Architecture in London in 1906, in Vienna in 1908, and in Rome in 1911, after which he was elected Honorary Corresponding Member R.I.B.A. and of the Société Centrale d'Architecture of Belgium. He took part in the International Congress of Architecture at Brussels in 1922, and in the International Congress on Architectural Education in London in 1924.

He was a fluent linguist, and spoke Russian, English, French, German, Spanish and Italian.

Roger L. Palmer, M.C. [A], of Bridport, Dorset, who died on 4 June 1948, aged 59, was the author of English Monasteries in the Middle Ages and English Social History in the Making, published in 1930 and 1934 respec-tively. His chief interest was in ecclesiastical architecture (he acted in an advisory capacity for the Diocesan Committee for the care of old churches in Bridport and district, and was on the Committee's panel of architects), but he practised in domestic work as well, being the architect of Council houses at Melplash, near Bridport. Mr. Palmer was architect to the Beaminster R.D.C., Dorset, and Mr. Stanley Natusch, M.A. [A] succeeds to his practice.

He was handicapped during the past fifteen years by appallingly bad health, and suffered a great deal of pain. His courage in continuing actively to practise in the face of such difficulties won him the highest praise from all

who knew him.

Mr. Palmer commenced private practice in 1919 in London, and then in Eastbourne, after serving with distinction in World War I, and having been trained in the office of Messrs. Robinson and W. Alban Jones of Leeds.

Ernest Robert Barrow [F] died at Beaulieu, Hants, on 18 November last, aged 80. He was Ashpitel Prizeman in 1893. He designed college rooms and flats for Sidney Sussex College, Cambridge, and flats for St. John's Col

Membership Lists

ELECTION 14 DECEMBER 1948

The following candidates for membership were elected on 14 December 1948.

AS HON. FELLOWS (2)

Ilchester: The Earl of. Samuel: The Right Hon. Viscount, G.C.B.,

AS HON, ASSOCIATES (2)

Lancaster: Osbert.

Sitwell: Sacheverell, Towcester, Northampton-

AS HON, CORRESPONDING MEMBERS (17)

Burckhardt: Ernst F., Zurich, Switzerland. Delano: Wm. Adams, M.A. (Yale), Officier Légion d'Honneur; New York 16, N.Y., U.S.A.

Eliassen: Georg, Oslo, Norway.

Eriksson: Nils Einar, Göteborg, Sweden. Fisker: Kay, Professor, Copenhagen, Den-

Hedgvist: Paul Gunnar, Professor, Stockholm, Lind: Sven Ivar Harald, Professor, Stockholm,

Sweden. Lund: Frederik Christian, Copenhagen, Den-

mark. Lurcat: Andre, Chatenay Malabry, Seine,

France. Michelucci: Giovanni, Professor, Firenze, Italy. Monteiro: Porfirio Pardal, Professor, Lisbon,

Portugal. Neutra: Richard J., Los Angeles, California, U.S.A.

Roth: Alfred, Zurich, Switzerland.
Samona: Giuseppe, Professor, Rome, Italy.
Sundahl: Eskil, Professor, Stockholm, Sweden. Van der Rohe: Ludwig Mies, Professor, Chicago, Illinois, U.S.A. William-Olsson: Carl Martin Tage, Goteborg,

Sweden.

AS FELLOWS (15)

Gordon: Percy James [A 1920], Sydney, Australia. Honikman: Alfred Harold [A 1935], Cape Town, South Africa.

Kendall: Henry, O.B.E., M.T.P.I. [A 1928], Richmond, Surrey.

McLaren: Ian Hastings [A 1929]. McMullen: Alexander Lawrence, M.A.(Cantab)

[A 1930], Bristol. Peake: Brian, A.A.Dip. (Hons.) [A 1938].

Ross: Eric Louis Genge [A 1939], Bristol. Underhill: Alfred [A 1931]. Wolff: William Eugen [A 1934], Torquay.

and the following Licentiates who have passed the qualifying Examination:

Clark: Herbert Anthony, Wrexham. Farmer: Sidney Albert, Cambridge. Jolly: George James (Major). Konrad: Joseph, A.M.T.P.I., Hull.

Lindy: Kenneth John. Moro: Peter.

AS ASSOCIATES (411)

Ackland: James Bryant, Bristol. Adams: Ralph Whatmoor, Dip.Arch (Leeds), Warrington. Aitken: Allan, Dip.Arch. (Aberdeen), Aber-

deen.

Alderson: Frederick, Dip.Arch (Durham), Easington, Co. Durham. Alderson: Geoffrey Stuart, Manchester.

Allan: Frank, Edinburgh.

Allan: Robert, Dip.Arch. (Glasgow), Dewsbury.

Allerton: Kenneth, West Bridgford.

Attwater: Donald David, Preston. Ayton: Francis Herbert, Newcastle-on-Tyne. Baikie: John Edgar Alexander, Crawford, Lanarks.

Bailey: Brian, Birmingham.

Baker: Alfred Patrick Edmeades, Gravesend. Bance: Roy Ernest Keith.

Barker: John Clifford, Dewsbury. Barnes: Frederick Richard. Barr: Albert William Cleeve.

Barrett: George Watkinson, Port Moresby,

Barrett: Peter Rhodes, Dip.Arch (L'pool), Colne, Lancs.

Bates: Jack, Newcastle-upon-Tyne. Baxter: Kenneth Martin, Manchester. Bean: Norman Stewart, Hull.

Beard: Geoffrey John.

Belchamber: John, Nottingham. Bennis: David.

Benson: Alan Warburton, Leeds.
Bercott: Baron, B.Arch. (L'pool), Liverpool.
Bickford: Reginald Joseph, Dublin.

Blackburn: Alfred Norman, Dip.Arch. (Dist.) (Leeds).

Blackwell: Harold William, Belfast.

Blockley: John Patrick, M.C. Borland: Marjorie Kirsteen (Miss), Glasgow. Bosanquet: Peter Henry, Marlborough.
Bowen: Stewart Powell, Dip.Arch. (Mancr.), Manchester.

Bowering: Frederick John, Canterbury. Boxell: Cyril Laurence, Brighton.

Bradley: Stanley, Dip.Arch. (Leeds), Bingley. Brand: Ian Thomas, Edinburgh. Brazier: Norman Henry Frederick, Chelmsford.

Broadbent: Winifred Joyce (Miss), B.A. (Hons. Arch) (Mancr.).

Bromage: Frederick Wilfred Arthur, Leominster. Brooke: Jennifer (Miss).

Brown: James, Musselburgh. Brown: William George, Turriff.

Brown: William Newman. Buchanan: Alexander Murdoch, Dip.Arch. (Glasgow), Troon.

Burd: Evelyn (Miss), York. Burford: Douglas William, Carshalton.

Buteux: Harold Ernest. Butters: John Charles, Ipswich. Buttle: Derek, Goole.

Caldwell: Barbara Jean (Miss), Camberley.

Cane: John Ralston, Birmingham. Carruthers: Alan John, Dip.Arch. (Glasgow), Glasgow.

Cathcart: Richardson John D'Arcy, Salisbury, Southern Rhodesia.

Chamberlin: Peter Hugh Girard. Chapman: Peter Claude.

Chester: Dorothy Edith (Miss), Barnton, Midlothian. Chitty: Howard John, Inverness.

Christopherson: Austen Gerard, Newcastle-

upon-Tyne. Clark: Ivor Maclean, Marazion. Clark: Robert Kenneth, Dip.Arch. (Dist.)

(Dunelm), Newcastle-upon-Tyne. Clark: Robert Leslie, Sutton.

Claydon: John Arthur [L], Bedford. Clayton: John Cyril, Belfast. Clothier: Geoffrey Ind.

Clunies-Ross: Edward Warren Dymoke, Seven-

Coates: Ann Barbara (Miss), Bath. Coburn: Gordon Edwin, M.B.E.

Cole-Evans: Gwynedd Alafon, Dip.Arch. (Sheffield), Swansea. Collinge: Ernest, Bolton.

Collins: Peter, Dip.Arch. (Dist.) (Leeds), Leeds. Connell: Hugh, Mauchline, Ayrshire. Connett: Ralph Grenville, Dublin.

Cook: Alexander Forbes, A.M.T.P ... Wake Gib field.

Cooke: Michael Maurice, Kidderminster, Coppock: John Gordon, Dip.Arch. (Mancr.) Manchester.

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Cordwell-Smith: Leslie Montague. Corney: Peter Beldam, Birmingham Cotton: George Thomas, Stourbridge, Staffs. Coulton: Percy Robert, Bury St. Edmund's.

Somerset. Cousin: Esmee Mabel Struan (Miss) Crammond: Maurice McPherson, Chelmsford Cranswick: Phillip Anthony, Doncaster. Cripps: Anthony Ivan, Tilehurst, Berks. Crocker: Alan Edward, Ditchling, Sussex.

Councell: Richard Edward Brian, Clevedor

Croft: Paul Francis. Crosland: Willie Brian, Preston.

Cross: Arnold. Crouchley: John Royston, Malvern Cunningham: Douglas Hollings, Cornhill-on Tweed, Northumberland.

Curtis: John [L], Burton-upon-Trent.

Daley: Eric, Manchester. Dalgleish: Andrew Martin, Monymusk, Aber

deenshire. Davey: Mary Hillier (Miss), Cambridge. Davidson: George Meldrum.

Dempster: Thomas Andrew Bryson, Evesham Dick: Ronald Albert, Beckenham. Dickie: Christian Irene (Miss), New Deer

Aberdeenshire. Dixon: Alison Mary (Miss). Dixon: Paul Denison.

Dobson: Arthur Irving. Dobson: William Alan, Dip.Arch. (Leeds). Halifax.

Dore: Noel Jocelyn (Miss). Doudney: Edward Guy, Ilford.

Drake: Francis Sidney Driver: Margaret Eleoine Pleydell (Miss),

Plymouth. Duffy: John William, Dublin.

Duncan-Jones: Anthony William Harness. Durrant: Olive Joan (Miss).

Eden: Alan, Leeds.

Edwards: Laurence Carlton, Welshpool, Monts. Elborn: Arthur John, Doncaster. Eldridge: Frank Herbert, Lewes.

Elliott: Arthur Wallis, Royston, Herts. Ellsmoor: Brian Arthur Francis. Elphick: Peter George, Dip.Arch. (Durham)

Newcastle-upon-Tyne. Elsworth: Gladys Margaret (Miss), B.Arch. (Durham), Shrewsbury.

Evans: Dudley Murray.

Fairlamb: Bernard William, Newcastle-on-Tyne.

Featherstone: Cecil, Bishop's Stortford. Fender: Brian Geoffrey, Westcliff-on-Sea. Field: Anne Kathleen (Miss), B.A. (Arch.) (Lond.).

Fitch: Alan, Newcastle-upon-Tyne. Fleming: Benedict Joseph. Fletcher: George Henry, Dip.Arch. (Dunelm) Middlesbrough.

Flinder: Alexander. Foden: John Wilfred, Warrington. Forestier-Walker: Robert Jestyn Gwent, Rhiw-

derin. Foster: John Peter, Hemingford Grey, Hunts.

Foulkes: Ralph Colwyn, Colwyn Bay. Frankish: Gerald David, Hull. Freeman: David Peter.

French: Frederick William. Galbraith: Brian, Dip.Arch. (Mancr.), Warrington.

Galbreath: Murdoch, B.Sc. (Arch.) (Glasgow). Hull.

June Loveday (Miss), B.Arch. Gardner: (L'pool), Oxford. Gibbon: William Arthur, B.A. (Hons. Arch.

(Mancr.), Manchester.

Pa., Wake Gibbs: Philip Gregory, B.A. (Hons. Arch.) Sheffield , Sheffield. Gibbs: Stephen Joseph.
Gilbert: Jean Mary (Miss). h. (Maner.) Gilby: Daniel, Worcester.

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Glen-Bott: John Alexander, M.A. (Cantab.), B.A. (Hons. Arch.) (Sheffield), Haslemere. Gloag: Herbert Lawrence, Watford.
Gnosspetius: Janet Barbara (Miss), B.Arch. , Clevedon

Ginsburg Leslie Bernard.

(Miss.) L'pool), Coniston, Lancs. Gonsalves: Joseph. Goodchild: Jeanne Frances (Miss), New Malden

Gorbing: Raymond.
Gosney: Catherine Alison (Miss), Kingswood,

Surrey.
Graham: George.
Gray: Major John, Gateshead-on-Tyne.
Gray: John, Glasgow.
Greaves: Walter Edward, Ilford.
Green: Charles Sinclair, Stoke-on-Trent.
Greenacre: Walter, Blackpool.

Cornhill-on-Gregory: Wallace Gerard.
Grimm: Stanley Timothy John Montgomery.

musk, Aber-Halliwell: Laurence Victor, Dip. Arch. (Manc.),

Hammersley: Priscilla Jane (Miss), Hadlow Down, Sussex.

Hannaford Avro: Frederick John. Hardstaff: Maurice.

New Deer Hardy: Raymond, Dip.Arch. (Edin.), Edin-

Harker: Kenneth Horace, Truro. Harper: Geoffrey Martin, Wednesbury, Staffs. Harris: Leonard Reginald, Burton-upon-Trent. ch. (Leeds), Harrison: Mary Reed (Miss), St. Ives, Hunts. Hartley: Harold Neil, Colne, Lancs.

Hartley: Thomas Cyril, Chester. Harvey: Ronald Sinclair, Dip.Arch. (Edin.), Aylesbury

Haunch: Terence Osborne, B.A. (Hons. Arch.) (Sheffield), Retford.

Hawthorne: Anthony Hope, Cardiff. Hayden: James, Thorpe Bay, Essex. Haydon: Ronald Hubert, West Wickham.

Henderson: Joseph Alexander. Hendry: James Frank Williamson, Glasgow.

Hendry: James Frank Williamson, Glasgow. Henly: Rupert Desmond. Herring: Mary (Miss), Richmond, Surrey. Hickes: Arthur Clayton Smallwood, Dip.Arch. (Mancr.), St. Leonards-on-Sea. Hislop: Malcolm John, Weston-super-Mare. Hodges: Graham Charles, Croydon, Surrey. Hodgson: James George Denis, Leeds. Holmes: Aileen Shirley (Miss). Halmes: John Charles. Glasgow.

Holmes: Alicen Smirley (Miss).
Holmes: John Charles, Glasgow.
Holt: Alexander, Thornton-le-Fylde, Lancs.
Horrocks: John, Dip.Arch. (Leeds), Leeds.
Howard: Joan (Miss), B.A. (Hons. Arch.)
Mancr.), Stalybridge, Cheshire.
Hughes: Walter James.

Hutton: Alexander, Dunfermline. Hyne: Henry Reginald, St. Ives, Cornwall.

Ingoldsby: Joseph [L], Newport, I.o.W. lrwin: Arthur Leslie, Leeds.

Jackson: Andrew, Dunfermline. Jackson: Percy, Barnsley.
Jarvis: John Kenneth, Dip.Arch. (Leeds),

Jhabvala: Cyrus Shiavax Hormusii.

Johnson: John Francis William, Sunderland. Johnson: Leonard James.

Jones: Bridget Winifred (Miss), Wolver-Jones: Denis Mason, M.A. (Cantab.), Wetherby,

Jones: Evan Willie Meurig, Dip.Arch. (Dist.)

Wales), Llanelly Jones: Mervyn Walter Allman, Booterstown,

Co. Dublin. Co. Dublin.

Kane: John Robert [L].

Francisco: Raymond William, Dip.Arch.

Kenning: Raymond (Mancr.), Manchester. Kenny: Kenneth James, Newry, Co. Down. Kershaw: John, Halifax.

Kidby: Charles Robert Ernest, Stafford. Kinsman: Sidney John Charles, Bracknell, Berks.

Kirkland: Cynthia Margaret (Mrs.), Weybridge, Surrey.

Kirkland: Peter Derek, Northampton. Kirkwood: James, Dip.Arch. (Glasgow),

Glasgow. Lamb: John, Aberdeen.

Laskey: Raymond Seward, B.A., South Nutfield, Surrey. Latham: John Godbert, Manchester.

Lea: Henry Hugh Edgar, Halifax. Lee: Harry, Dip.Arch. (Dunelm), Newcastleupon-Tyne.

Lees: Francis Geoffrey. Legerton: Colin Arthur, Esher, Surrey

Lewis: Charles Richard Edward, Stoke-on-

Lewis: Freda May (Miss), Cullercoats, Northumberland.

Lewis: John Vivian, Ilford. Lewis: Mason Derek, Newport, Mon. Liardet: Colin Geoffrey, Watford, Herts.

Ling: David, Derby. Lister: Norman, Hull.

Liversidge: Philip Harold, B.A. (Sheffield), Rotherham.

Lloyd: Jane (Miss), Brighton. Lloyd Hughes: Edward, Smethwick. Lomax: John Pye, Sheffield.

Loutsis: Philip George, Manchester. Lowes: Cyril, Durham. Luck: Leslie Llewellyn, Taunton. Lumb: Frank, Dip.Arch. (Leeds), Whitefield,

Lancs.

McCombie: Albert, Insch, Aberdeenshire. McCowan: Alexander John, Aberdeen. Macdonald: Alastair Donald, York.

MacIver: Peter Willans. Mack: George Robert Ashworth, Louth, Lincs. Mackinnon: Victor Gardner.

McLeish: John Gillies. Maclurcan: Robert Geoffrey, Sydney, Australia. McMullon: Stanley John, Ilford. Macnair: Kenneth Charles, Dip.Arch. (Edin.),

Bournemouth. McWiggan: Graham, Gateshead.

Madew: John Sydney, Newcastle, Staffs. Mair: Harold Ian Keith, Dartford. Markbreiter: Charles Stephen.

Marker: Ferokh Hormusji. Mason: Douglas Robertson Morton, Nottingham.

Meers: Peter Rupert Neame, Weybridge,

Meires: Feter Rupert Neame, Weybridge, Surrey.
Mein: Henry Jameson, Nottingham.
Meisenhelter: Donald, Melbourne, Australia.
Melling: Frank, Dip.Arch. (Sheffield), Sheffield.
Mellor: Alexander John, Bournemouth.
Mellor: James Baker, Heywood.
Merson: John, Oldmeldrum, Aberdeenshire.
Meyer: Ursula Selma (Miss).
Meidleton: Poter. Nottingham.

Middleton: Peter, Nottingham. Midwinter: Stanley Walter.

Miller: Kenneth George, Wadhurst, Sussex.

Millington: Arthur Henry [L].

Minns: Robert Elden, B.A., Sheffield.

Moody: Alan Raymond, Dip.Arch. (Dist.) (Sheffield).

Morris: Harold Richard, A.A. Dip. Morris: Leonard Edward, Winchester. Moss: Charles Brearley, Dip. Arch. (Leeds),

Mossman: Alexander, Dip.Arch. (Edin.), Edin-

Musgrave: Brian Rhodes, Shipley. Naidu: Vummidisingh Hanumantha Rao.

Nelsey: Robert William, Brighton. Netts: Leonard, B.Arch. (Hons.) (Dunelm), Newcastle-upon-Tyne.

Newcombe: Philip Clive (Junr.), Benton,

Nullis: Norman Charles, Westcliff-on-Sea, Essex.

Nuttall: Frank Anderson, Dip.Arch. (Leeds), Leeds.

Oldham: George Scarr, Rossendale.

Olley: Jack, Mansfield. Orchard: Ernest Anthony, Stafford.

Page: Harold Sidney.
Paget: Alfred Edgar, Widnes.
Palmer: Reginald Thomas, Chipstead Valley,

Parkinson: Frank William, Birmingham.

Parsons: Harold, Thurlestone, S. Devon. Pate: Donald Alston, Dip.Arch. (Dist.) (L'pool), Preston.

Pearn: Charles Henry Paul, Dip.Arch. (Dist.) (L'pool), Yelverton, S. Devon.
Pearson: Gerald Mascotte, Preston.

Penfold: Henry George. Petty: Anthony, Lyndhurst, Hants. Petty: David John, M.B.E., M.A. Phillips: Norman Moon, Newcastle-upon-Tyne.

Phillips: Paul Richard Rees, Arundel, Sussex. Pickstone: Henry Webster, B.Arch. (L'pool),

Formby, Lancs.
Piggott: Estrid Chetwynd (Miss), Gatley, Cheshire.

Pitt: Roland Arthur, Birmingham.

Pollard: Kenneth, Leeds. .
Porritt: Hubert Harold, Newcastle-upon-Tyne.
Porter: William Donald, Richmond, Yorks. Potter: John Eric.

Pratt: Alan Leslie Hampden, Newcastle-on-Tyne.

Prest: Harry Albert, Felixstowe. Price: David Lyn, Dip.Arch. (Wales), Cardiff. Pyment: Desmond Arthur, Campden, Glos.

Pyne: Granville Claude. Rains: John Edward.

Ransom: Colin Walker, Taunton. Redgate: Lewis Arthur, Nottingham. Reed: Kenneth William Charles.

Reid: Howard Maxwell, B.A. (Cantab.), Glasgow.

Rew: James Findlay, Aberdeen. Reynolds: Donald Albert Robert, Fareham. Rickard: Donald Michael, Dip.Arch. (Dist.) (Sheffield), Derby

Rix: Margaret Elizabeth (Mrs.), Newcastle-on-Tyne.

Rix: Norman, Jarrow, Co. Durham. Roberts: Christopher Howard, Newcastle-upon-

Robertson: David Ogilvie, Dundee. Robertson: Hugh Stewart, M.C., Airdrie. Robertson: Robert Meldrum, Bellshill, Scot-

Rogerson: Robert William Kelly Cupples, Glasgow.

Ross-Smith: Stanley Patrick, Edinburgh. Rossi: Anthony, Dip.Arch. (Sheffield), Consett, Co. Durham.

Rudduck: Grenfell, Didcot. Rumsby: George William Edward, Bournemouth.

Russell: Douglas, Leeds.

Rusted: John Frederick.

Sanderson: Willie Hesling, Exeter. Sargent: Maurice, Dip.Arch. (Dist.) (L'pool), Keswick.

Schutte: Conrad Henry Theodore, Derby. Scott: James Brunton, Edinburgh. Scrivens: Alan Broom, Barnet, Herts. Sealey: Walter George, Huddersfield.

Seed: George Kenneth, Dip.Arch. (Dist.) (L'pool), Liverpool. Selby: Frederick, Bearsden, Dumbartonshire.

Shankland: Colin Graeme Lindsay, M.A.

Shearing: Arthur Henry Ernest. Shepherd: Alexander Duncan, Tilford, Surrey. Shepherd: Francis Henry, Aberdeen. Shoolheifer: Emanuel.

JANUARY 1949

Shooter: Douglas Ernest, B.A. (Hons. Arch.) (Mancr.), Ashton-under-Lyne, Lancs. Short: Vernon, Dip.Arch. (Leeds), Malton, Vorks

Simpson: John Alexander, Dip. Arch. (Aberdeen), Portnockie, Banffshire. Singleton: Frank William.

Slatter: George Edward Frederick, Dip.Arch. (Dist.) (Wales), Cardiff.

Smart: John Clifford. Smith: Aileen Forbes (Miss).

Smith: Roy George, Birmingham. Smith-Jones: Robert Osborne, Dip.Arch.

(Wales), Barry, Glamorgan. Souper: Hugh Ross, Aberdeen.

Spaven: Thomas Riddell, Newcastle-on-Tyne. Spurr: Roland Dawson.

Stephen: Lewis Gavin, Aberdeen.

Stewart-Hunter: Herbert Reah, M.A. (Cantab), Sutton, Surrey.

Stillman: Pamela June (Miss).

Strath: George Leslie, Ruthrie, Banff. Straus: Michael Gunther, Richmond, Surrey. Summers: Robert Edmund, Bristol. Sunderland: Frederick Arthur, Burley-in-Wharfedale, Yorks. Sykes: Eric William, Norwich.

Taylor: George Percy Warrington.

Taylor: John, Preston.

Taylor: Paul Harley, Belper, Derbyshire. Thakore: Chandrakant Satyendra, Glasgow. Thomerson: Robert Harold Charles, C. de G.

Thomson: Edward George, Glasgow. Tinker: John Geoffrey, Manchester. Tomkinson: Donald Austin, Crewe. Torrance: Hugh Dewar Burns, Dip.Arch.

(Glasgow), Hamilton, Lanarkshire.

Trant: Harold William.

Trebilcock: Ronald Wallace, Sacriston, Co. Durham.

Twist: Kenneth Charteris, Hertford. Van Rompaey: Alfred Robert, Melbourne,

Australia. Vass: Claude Roland, Farnborough, Hants. Ventris: Michael George Francis.

Vulliamy: John Sebastian Papendiek. Wakefield-Brand: Charles Percy, M.B.E., Ryton, Co. Durham.

Walker: Colin Fleetwood, Birmingham. Walker: David Earle, Dip.Arch. (Glasgow),

Brough, E. Yorks. Walker: Marshall.

Wall: John Victor, Gloucester.

Wallace: Kenneth Gordon, Dip.Arch. (Glasgow), Glasgow.

Wearden: Clifford Kirkham, B.Arch. (Hons.) (L'pool.), Preston.

Webb: Jeffrey, Stourbridge.

Wells: Christopher Blackburn, Steyning, Sussex. West: John Evelyn.

Wheatley: Peter Etherington, Hull.

Wheeler: Harry Anthony, Dip. Arch. (Glasgow), Stranraer, Wigtownshire.

White: Albert Walter Vousdon.

White: Desmond Ivor. Whitehorn: Donald Punyer (Captain), Edin-

Whitehouse: Joseph Derek, Manchester. Whyman: Peter Harold, Stockport.

Wigglesworth: Gordon Hardy. Wilkinson: Frederick Arthur, Aylesbury.

Wilkinson: Gordon Hugh, Barnsley. Willcox: John Thomas, Newcastle-upon-Tyne, Williams: Harry Lyon, Cults, Aberdeenshire.

Williamson: Albert Edward, Bristol. Wilson: Alan Herbert, Doncaster. Wilson: Arthur Marton Smedley, Nottingham.

Wilson: John Allen Robert, Peterborough. Wilson: Stephen, Selby.

Winder: Norman Henry Duncan, B.Arch. (L'pool), Cheshire.

Windle: Peter Darnbrough, Baildon, Yorks. Wollerton: John, M.C., Dip.Arch. (Sheffield). Sheffield.

Wood: Beryl Helen Jenny (Miss), Southampton.

Woodhams: Joseph William Hart, Belfast. Worley: Victor Walter, Addiscombe, Surrey. Wright: John, Reigate, Surrey.

Wurr: Thomas Peter.
Yates: Daniel Stuart, Dip.Arch. (Leeds), Newcastle-upon-Tyne.

Young: Clifford, Leeds. Young: Kenneth Mathison, Perth.

AS LICENTIATES (15)

Abbs: Geoffrey Frank, Cambridge. Anderson: Albert Nelson.

Dargie: Jack Arklie, Eccles. Fraser: Kenneth Murray, Glasgow. Garton: Samuel James, F.S.A. Hall: Walter Ralph Patten, Cosham. Keyworth: Francis William, Kettering. Lawson: Philip Francis, Maidstone.

Marriott: Basil. Paice: Cyril Lawrence, Manchester. Prop: Percival Royal, West Bromwich. Sparrow: Kenneth Geoffrey, M.A. (Arch.) (Cantab), Maidstone.

Whiteley: Frank, B.A. (Hons.Arch.) (Mancr.), Manchester.

Williams: James Isgoed, Penmænmawr. Yeoman: Guy Hemingway, Tunbridge Wells.

ELECTION: 8 FEBRUARY 1949

An election of candidates for membership will take place on 8 February 1949. The names and addresses of the candidates, with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 5 February

The names following the applicant's address are those of his proposers.

AS HON, ASSOCIATE (1)

Baker: Frederick George, 41 Roxburgh Road, West Norwood, S.E.27. Proposed by the

AS FELLOWS (10)

Dyer: Leonard Stacey [A 1936], Architect's Office, British Railways, L.M.R., Watford; 'Monkchester', 44 Grimsdyke Road, Hatch End, Middx. W. H. Hamlyn, Dr. J. L. Martin, F. G. A. Hall.

Harvey: John Lyne, M.C. [A 1921], 44 Hans Crescent, Knightsbridge, S.W.1; 'Empacombe', Dalmore Avenue, Claygate, Surrey. E. H. Allsford, N. D. Quick, R. S. Dixon.

Innes: John, Dip.Arch. (Edin.) [A 1938], 11 Eltringham Gardens, Edinburgh. C. G. Blomfield, Bernard Matthews, F. B. Blomfield.

Jensen: Rolf Arthur, B.Arch. (Hons.), A.M.T.P.I. [4 1934], Director of Housing, Metropolitan Borough of Paddington, 2 Howley Place, W.2; Holland House, Church Street, Isleworth, S. C. Ramsey, Prof. Basil Ward, F. R. S. Yorke.

Morris: Noel Ennever Seton [A 1937], 10 Woburn Square, W.C.1; 10 Montpellier Walk, S.W.7. Dr. H. V. Lanchester, T. A. Lodge, Allan Johnson.

Wyatt: Leslie Herbert William [A 1920], Bank Chambers, 463-465 Brixton Road, S.W.9; 9 Tootswood Road, Bromley, Kent. F. T. Dear, H. J. Stribling, A. F. Hooper.

and the following Licentiates who are qualified under Section IV, Clause 4 (c) (ii) of the Supplemental Charter of 1925:

Dodd: Harry Davenport, Town Hall, South-port; 'Braunton', Bakers Lane, Churchtown, Southport. Alfred Crampton, Norman Jones, Leonard Rigby.

Dodds: Archibald Kirkwood, 36/38 Victoria Street, S.W.1; 'Essira', Shere, Surroy, T. F. Maclennan, Sir James West, G. V. Myer.

Harrison: Samuel, Council Offices, Hinh Green Cannock, Staffs; Aldersyde, Shoal Hill, Cannock. Arthur Harrison, A. Booth. William Haslock.

Smith: Reginald Victor, 14 Gray's Inn Square, W.C.1; 14 Hayes Chase, West Wickham, Kent. Victor Heal, L. S. Sullivan, W. H. Hamlyn.

AS ASSOCIATES (55)

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

Anderson: John Baskerville [Special Final], 37 St. Dunstan's Road, South Norwood, S.E.25 J. K. Hicks, R. G. Covell, T. W. East.

Barclay: Alexander Miller (Dundee Coll. of Art: Sch. of Arch.), 27 Barnes Avenue, Dundee. John Needham, Leslie Grahame-Thomson, J. D. Mills.

Bell: James Beattie (Edinburgh Coll. of Art: Sch. of Arch.), 28 Buccleuch Place, Edinburgh. T. F. Maclennan, W. A. Ross, Leslie Grahame-Thomson.

Bramer: Noel Kenneth Scott (Birmingham Sch. of Arch.), Wood Dean, Jordans, Beaconsfield, Bucks. George Drysdale, C. H. Aslin, H. Y.

Breese: David Alexander (Capt. R.E.), B.Arch. (Hons.) (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 29 Gainsborough Road, Liverpool, 15. Prof. L. B. Budden, Donald Brooke, B. A. Miller.

Bridgewater: Bernard Sydney (Birmingham Sch. of Arch.), 'Newholme', Foley Road, Ped-more, Stourbridge, Worcs. George Drysdale, T. M. Ashford, H. C. Bloomer.

Broadhurst: Frederick Harold (Victoria Univ. Manchester: Sch. of Arch.), 5 Carr Road, Irlam, nr. Manchester. Prof. R. A. Cordingley, J. P. Nunn, H. J. Rowse.

Burdis: John Francis Calbreath (King's Coll (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.), 22 Framlington Place, New-castle-upon-Tyne, 2. Prof. W. B. Edwards, J. H. Napper, G. E. Charlewood.

Churton: John [Final], 104 Hollin Lane, Middleton, Lancs. A. Douglas Jones, W. C. Young, Francis Jones.

Crichton: Vivian Hilda (Miss) (Arch. Assoc. (London): Sch. of Arch.), 21 Whittington Court, Aylmer Road, N.2. L. H. Bucknell, H. G. Goddard, R. F. Jordan.

Dale: Thomas Simon Savage, M.A. (Northern Poly. (London): Dept. of Arch.), 358 Woodstock Road, Oxford. Prof. A. E. Richardson, Harold Tomlinson, E. M. Rice.

Dand: James Brignell (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch.), 51 Cavendish Place, Jesmond, Newcastle-upon-Tyne, Prof. W. B. Edwards, J. H. Napper, Lt.-Col. A. K. Tasker.

Dickinson: Peter Allgood Rastall (Arch. Assoc. (London): Sch. of Arch.), 15 Herbert Crescent, S.W.1, L. H. Bucknell, H. G. Goddard, R. F.

Dinwoodie: James Ferguson Dickson (Edinburgh Coll. of Art: Sch. of Arch.), 5 Maidencraig, Blackhall, Edinburgh. W. H. Kininmonth, Basil Spence, A. H. Mottram.

Ellis: Eileen Margaret (Miss) [Final], 24 Milner Road, Morden, Surrey. Paul Nightin-gale, D. Nightingale, Howard Robertson.

8 Victoria Evans: Kenneth Charles (Birmingham Sch. of Arch.), 16 Wentworth Road, Harborne, Birmingham, 17. George Drysdale, A. Douglas ones, T. M. Ashford. lich Green,

T. V. T. F.

Hill, Can-h. William

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Vhittington

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Fairbrother: James Alick (Leeds Sch. of Arch.), Scott Lane, Bardsey, nr. Leeds. Applying for nomination by the Council under Bye-law 3 (d).

Falconer: George Arthur (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 9 Culbard Street, Elgin, Morayshire. E. F. Davies, Vickham, Wickham, M. H. A. Mitchell, John Wittet.

Fox: Alfred Scott (Dundee Coll. of Art: Sch. of Arch.), The Rectory, Lerwick, Shetland. John Needham, A. D. Haxton, G. C. Young. ls, after a

> Gott: George Ernest (King's Coll. (Univ. of Durham), Newcastle-upon-Tyne, Sch. of Arch), Southill', 17 Durham Road, Middle Har-rington, nr. Sunderland. Prof. W. B. Edwards, W. Milburn, J. H. Napper.

Grant: Gordon Collie (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), The Neuk, New-mill, Elgin. John Wittet, J. B. Nicol, E. F.

Groves: William Henry, Dip.Arch. (Nottm) (Nottingham Sch. of Arch.), Blidworth Lodge, Blidworth, Notts. T. C. Howitt, Prof. Stephen Grahame-Welsh, J. W. M. Dudding.

Horne: William Adam (Liverpool Sch. of Arch.: Univ. of Liverpool), 17 Ridgeter Road, Woolton, Liverpool. Prof. L. B. Budden, D. Brooke, B. A. Miller.

of Arch. ugh Road, Houghton: John [Final], 168 Bricknell Avenue, Hull. G. D. Harbron, F. J. Horth, Allanson Hick.

> Knight: Christopher Shirley (Arch. Assoc. London): Sch. of Arch.), 7 Alvanley Gardens, V.W.6. Shirley Knight, G. W. Home, R. F. lordan.

> Laing: Kenneth William (Dundee Coll. of Art: Sch. of Arch.), Bridge of Earn Road, Dunning, Perthshire. G. C. Young, John Needham, R. M.

leather: Henry Brian (Birmingham Sch. of Arch.), 14 Orleans Road, Hornsey Rise, N.19. T. M. Ashford, A. R. Young, A. Douglas lones

McKinstry: Robert James, B.Arch. (Hons.) (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Banmount, Banbridge, Co. Down, Northern Ireland. Prof. L. B. Budden, Donald Brooke, B. A. Miller.

Maguire: William Arthur (Univ. Coll., Dublin, Ireland: Sch. of Arch.), 62, Dame Street, Dublin. Prof. J. V. Downes, P. J. Munden, J. J. Robinson.

Mandl: Gustav (Northern Poly. (London): Dept. of Arch.), 5 Broadlands, North Hill, N.6. P. V. Burnett, I. Shaw, J. W. Hepburn.

Martin: Richard Brian (Birmingham Sch. of Arch.), 183, West Heath Road, Northfield, Birmingham. George Drysdale, S. T. Walker, A. R. Young.

Morrison: Robert Stuart (Dundee Coll. of Art: Sch. of Arch.), 'Arthurlie', Burghmuir Road, Perth. John Needham, R. M. Mitchell, G. C.

Moss: Arnold [Final], 26 Nursery Road, Prestwich, Manchester. A. Douglas Jones, W. C. oung, H. T. Seward.

Nicol: James Watt [Special Final], 96 Carrick Knowe Drive, Edinburgh. W. A. Ross, J. S. Johnston, T. C. Marwick.

Olins: Fabian (Arch. Assoc. (London): Sch. of Arch.), 'Ashcroft', Cedars Close, Hendon, N.W.4. A. S. Ash, H. G. Goddard, L. H. Bucknell.

Parratt: Leslie Richard (Arch. Assoc. (London): Sch. of Arch.), West Hill House, Wrecclesham, Farnham, Surrey. G. M. Aylwin, A. J. Stedman, H. Y. Margary.

Quigly: Clarice Mary (Miss) (Arch. Assoc. (London): Sch. of Arch.), 24 Alexander Square, S.W.3. H. D. Roberts, H. G. Goddard, L. H.

Robertson: Margaret Mills (Miss), Dip.Arch. (Dundee) (Dundee Coll. of Art: Sch. of Arch.), 4 Lyndhurst Place, Dundee. John Needham, Leslie Grahame-Thomson, R. M. Mitchell.

Savi: Victor Robert (Edinburgh Coll. of Art: Sch. of Arch.), Russell Mill House, Springfield, Fife, Scotland. J. R. McKay, Leslie Grahame-Thomson, A. H. Mottram.

Scott: Alexander (Dundee Coll. of Art: Sch. of Arch.), 13 Albert Street, Dundee. John Needham, Basil Spence, Leslie Grahame-Thomson.

Sellers: William Gordon, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 377 Warrington Road, Culcheth, Lancs. Prof. L. B. Budden, Donald Brooke, B. A. Miller.

Smith: Haydn William [Final], Queens Cinema, Hollinwood, Oldham. A. Douglas Jones, W. C. Young, H. T. Seward.

Smithies: Kenneth William (Liverpool Sch. of Arch.: Univ. of Liverpool), 42 Hampstead Road, Liverpool, 6. Prof. L. B. Budden, D. Brooke, H. A. Dod.

Staplin: Jack Hylton (Bartlett Sch. of Arch.: Univ. of London), 34 Chandos Avenue, Whet-stone, N.20. Prof. A. E. Richardson, M. A. Sisson, Prof. H. O. Corfiato.

Stern: Ruth (Mrs.) (Northern Poly. (London): Dept. of Arch.), 24 Belvedere Court, Lyttelton Road, N.2. T. E. Scott, and applying for nomination by the Council under Bye-law 3 (d).

Strubbe: John Alexander [Final], 36 St. George Road, St. Margaret's-on-Thames, Middx. H. D. Roberts, J. E. M. Macgregor, D. R. Humphrys.

Taylor: Gordon Frederick [Final], 1 The Gable House, 12 Lawrie Park Avenue, Sydenham, S.E.26. F. Chippindale, H. M. Fairweather, R. W. Pite.

Tindale: Patricia Randall (Miss) (Arch. Assoc. (London): Sch. of Arch.), 47 Wentworth Road, Barnet, Herts. R. F. Jordan, W. R. F. Fisher, T. S. Tait.

Totterdell: Horace Ernest (Bartlett Sch. of Arch.: Univ. of London), 173 Tulse Hill, S.W.2. Prof. H. O. Corfiato, L. S. Stanley, S.

Wakelin: Richard Langford (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 69 Tydraw Road, Roath, Cardiff. Lewis John, Sir Percy Thomas, C. F. Bates.

Walton: Harold Anthony (Liverpool Sch. of Arch.: Univ. of Liverpool), 'Silverdene', Moss Road South, Northwich, Cheshire. Prof. L. B. Budden, F. X. Velarde, B. A. Miller.

Warwick: Shirley (Arch. Assoc. (London): Sch. of Arch.), Fitzroy Farm Cottage, Fitzroy Park, Highgate, N.6. L. H. Bucknell, R. F. Jordan, A. R. F. Anderson.

White: Ronald (Liverpool Sch. of Arch.: Univ. of Liverpool), St. Elmo, Scaland Avenue, Queensferry, Chester. Prof. L. B. Budden, F. X. Velarde, B. A. Miller.

Wilkie: Robert Andrew [Special Final], 45 Mardale Crescent, Edinburgh, 10. W. H. Kininmonth, Basil Spence J. R. McKay.

Wright: Arthur Francis Stevenson, M.B.E. (Dundee Coll. of Art: Sch. of Arch.), c/o Messrs. Gauldie, Hardie and Sharpe, 26 Commercial Street, Dundee. John Needham, A. D. Haxton, G. C. Young.

ELECTION: 3 MAY 1949

An election of candidates for membership will take place on 3 May 1949. The names and addresses of the overseas candidates with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 23 April 1949.

The names following the applicant's address are those of his proposers.

Billimoria: Homi Framjee, M.B.E., B.Arch. (Hons) (L'pool), [*A* 1923] Deputy Chief Architect, Public Works Dept., Colombo, Ceylon; 'Munnie Lodge', 64 Greenpath, Colpetty. N. Wynne-Jones, O. Weerasinghe, Prof. L. B. Budden.

Cumine: Eric Byron [A 1929], 159 Peking Road, Shanghai, China; 1396/3 Yu Yuan Road, Shanghai, H. M. Spence, H. G. F. Robinson, G. L. Wilson.

Karanjgaokar: Dattatraya Gangadhar [A 1939], Government Architect, Central Provinces and Berar, Nagpur, India. Claude Batley, D. W. Ditchburn, S. S. Reuben.

Massey: Horace Lovell [A 1920], 301/2 South British Buildings, Auckland, New Zealand; 452A Remuera Road, Auckland. M. K. Draffin, L. H. Bucknell, R. F. Jordan.

Towle: Charles Raymond [A 1921], N.Z. Insurance Building, 79 Pitt Street, Sydney, N.S.W.; The Walder, Holbrook Avenue, Kirribillie, Sydney, W. H. Gummer, C. R. Ford, J. C. Fowell.

The name of a school, or schools, after a candidate's name indicates the passing of a recognized course.

Brown: Roy Claude [Special Final], P.O. Avondale, Salisbury, Southern Rhodesia. C. A. Knight, F. A. Jaffray, D. W. Clark.

Fox: Graham Frederick [Final], 15 Columbia Road, Mt. Albert, Auckland, S.W.2, New Zealand. C. R. Ford, W. H. Gummer, A. C.

Lee: Frederic Charles (Passed a qualifying Exam. approved by the I.S.A.A.), 'Chrisleigh', Main Road, Westville, Natal. Prof. L. W. T. White, O. Pryce Lewis, D. R. Harper.

Lichtensteiger: David Ward (Arch. Assoc. (London): Sch. of Arch.), 2861 West 15th Avenue, Vancouver, B.C., Canada. R. F. Jordan, L. H. Bucknell, H. G. Goddard.

Marlow: Ralph [Special Final], P.O. Box 1, Suva, Fiji. Applying for nomination by the Council under Bye-law 3 (d).

Norman: Douglas Allan (Passed a qualifying Exam. approved by the R.A.I.A.), 10 Brighton Avenue, Preston, N.18, Melbourne, Victoria, Australia. C. E. Serpell, A. R. Butler, O. A. Yuncken.

Quelch: Henry Darro [Special Final], P.O. Box 372, Salisbury, Southern Rhodesia. C.A. Knight, F. A. Jaffray, W. W. Wood.

Van Heerden: Jan Jeremias Moll (Passed a qualifying Exam. approved by the I.S.A.A.), c/o School of Architecture, P.O. Box 594, Cape Town, South Africa. Prof. L. W. T. White, D. R. Harper, O. Pryce Lewis.

JANUARY 1949

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant, or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. R. Gordon Brown [A], having resigned his post as Principal of the Architectural Association School of Architecture, has been appointed to the Forbes Chair of Architecture, University of Edinburgh and Head of the School of Architecture in the Edinburgh College of Art.

Mr. James Deuchars [A] has been appointed Regional Architect to the Eastern Regional Hospital Board, Scotland. He will be pleased to receive trade catalogues etc. at 'Braeknowe', 430 Blackness Road, Dundee, Angus, Scotland.

Mr. C. Roy Fowkes [A], A.M.T.P.I., formerly a Senior Architect at the Ministry of Health, has been appointed Police Deputy Chief Architect and Surveyor at New Scotland Yard.

Mr. Donald A. Goldfinch [*F*] has been appointed Architect to the Birmingham Regional Hospital Board, 10 Augustus Road, Edgbaston, Birmingham 15.

Mr. R. T. Walters [A], A.M.I.Struct.E., has been appointed Chief Architect to the Timber Development Association Ltd., 75 Cannon Street, London, E.C.4.

PRACTICES AND PARTNERSHIPS

Sir Thomas Bennett, C.B.E. [F], Mr. Morris L. Winslade [F] and Mr. R. Scott Cockrill have taken Mr. P. H. Bennett, M.A. [A], into partnership and will continue to practise under the style of T. P. Bennett and Son at 43 Bloomsbury Square, London, W.C.1 (CHAncery 6691).

Mr. Peter F. Burgoine [A] is, from 1 January 1949, practising on his own account from 28 Coundon Road, Coventry.

Mr. C. J. Cheale [L] has recently purchased the practice of Mr. E. Renwell Randall [L] at 21 Railway Street, Chatham (Chatham 3112). Mr. Cheale will practise from that address in his own name.

Mr. L. M. Chitale [F], Oriental Buildings, Armenian Street, G. T. Madras No. 1, S. India, would be pleased to receive trade catalogues, booklets and other literature connected with lifts, air conditioning, steel windows, special reinforcement and doors for safe deposit vaults, aluminium and stainless steel and such other materials used in modern buildings. Time for supply and prices in India may be mentioned. Guarantee of service is important in all contracts.

Mr. A. K. Clark [L] has taken over the practice of the late Mr. Frank Baker at 7 York Place, Scarborough (Scarborough 618), and will for the present continue the name and style of the old practice. Mr. Clark will be pleased to receive trade catalogues etc.

Mr. Ralph G. Covell [F] has taken into partnership Mr. A. E. Thurman Matthews [A], who has resigned his appointment as planning officer to the Architect of the London County Council. They will practise under the style of Covell and Matthews [F/A] at 299 Mitcham Road, Tooting, London, S.W.17 (BALham 6756), and will be pleased to receive trade catalogues etc.

Mr. Alfred H. Durnford [L] and Mr. Harold W. Moore [A], formerly practising under the style of Durnford and Moore at 8 Clarges Street, Piccadilly, London, W.1, have dissolved partnership by mutual consent as from 31 December 1948. Mr. A. H. Durnford has entered into partnership with Mr. Stanley Parker [L], and as from 1 January 1949 they will practise as Durnford, Parker and Partners at 8 Clarges Street, Piccadilly, London, W.1 (GROsvenor 2781-2). Mr. Harold W. Moore will practise at Sheraton House, 14-19 Great Chapel Street, Oxford Street, London, W.1 (GERrard 6009).

With effect from 31 December 1948 the partnership between Mr. Gordon H. Griffiths [F], A.M.T.P.I., and Mr. Arthur J. Hayes [L] has been dissolved. Mr. Gordon Griffiths will be practising from 67 Queen Street, Cardiff and Mr. Arthur Hayes will continue to practise from 98-100 Queen Street, Cardiff.

Mr. G. R. A. Mack [A] is practising at 11 Upgate, Louth, Lincolnshire. He will be pleased to receive trade catalogues etc.

Mr. J. R. Southcombe [L] has been appointed Chief Architect to the Borough of Finchley in the Housing and Town Planning Department.

Mr. B. Stevens, F.R.I.C.S. [L], of 31 Cornfield Road, Eastbourne (Eastbourne 1454), has taken into partnership Mr. A. J. McDonough, A.R.I.C.S., registered architect, of Eastbourne, and Mr. A. C. S. Hickes [A], of Hastings, and the firm will in future practise under the style of B. Stevens and Partners, of the above address.

Messrs. Whinney, Son and Austen Hall [F/F] have taken into partnership Mr. Herbert James Franklin [A]. The name of the firm will remain unchanged. They practise at 37 Norfolk Street, Strand, London, W.C.2.

Miss Cynthia Wood [A] has given up her practice at Richmond House, Dolgelley, and is taking up an appointment with the Stevenage Development Corporation. Her work will be taken over by Mr. M. T. Pritchard [A], formerly in the Merionethshire County Architect's Department, now practising at Tryfan, Wynn Road, Blænau Ffestiniog, where he will be pleased to receive trade catalogues etc.

CHANGES OF ADDRESS

Mr. Edward T. Allcock [Retd. F] has removed to 'The Laurels', Belton, Great Yarmouth (Burgh Castle 262).

Mr. A. Stanley Barnes [4], formerly of 135 Whitehedge Road, Liverpool 19, has removed to 20 Mackets Close, Woolton, Liverpool, and has also opened an office at 36 Hamilton Square, Birkenhead (Birkenhead 1732).

Mr. Alec Feldman [L] has removed from 65 Church Road, Hove 3, Sussex, to Queen's House, Queen Square, Brighton (Brighton 7754).

Mr. R. L. Gehlote [F], Senior Architect, Central P.W.D., New Delhi, has removed to Room 79, 'L' Block, Central P.W.D., New Delhi.

Mr. E. Gomersall [A], of the County Architect's Department, Chester, will sail for South Africa on 17 February to take up an appointment with the Durban City Corporation. His address in this country for all communications will be c/o Ilsley House, Huntingdon, Hunts.

The address of Mr. K. Standish King [A], formerly of 2 and 3 The Sanctuary, Westminster, London, S.W.I, is c'o Government Architect, P.O. Box 662, Nairobi, Kenya Colony.

Mr. J. G. Martin [A] removed from Friards Bridge House, 164/172 Queen Victoria Street, London, E.C.4, to 7 Queenscourt, Wembley, Middlesex, on 1 January, 1949. The new address of Mr. Alfred E. Maynew [4] who is District Surveyor for the City of London West, is 9 Carmelite Street, London, E.C.4. (Communications were formerly addressed to him at 26 Martin Lane, or 107 Fleet Street, London, E.C.4, these offices having been closed.)

Mr. Walter W. Roberts [L] removed on 18 December from 'Weeke', New Road, Southam, rr. Cheltenham, to 'Cleeve', Downside Road, Weeke, Winchester.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

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Box 6, c o Secretary, R.I.B.A. Member (35), with 12 years' varied experience in private practice, desires partnership in London. Capital available. Box 7, c o Secretary, R.I.B.A.

Fellow (aged 36), Dip. Arch., Distinctions (Liverpool), Dip.T.P., A.M.T.P.I., having wide experience of housing, public, industrial and agricultural buildings, seeks practice or partnership. Any district considered except London. Limited capital only available. Box 172, clo Secretary, R.I.B.A.

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ACCOMMODATION

Fellow wishes to rent in West End, London, small suite of offices consisting of two or three rooms. Box 4, c/o Secretary, R.I.B.A.

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